The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 79, NO. 5 CHICAGO, ILLINOIS JULY 29, 1922

POSTOPERATIVE LUNG COMPLICATIONS *

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Scientific investigation and clinical experience agree in demonstrating that the causes which underlie the production of postoperative lung complications are manifold, and the best means of obviating them is still a desideratum.

Clinical reports indicate that lung complications most frequently follow abdominal operations, especially stomach, gallbladder (upper abdominal) and pelvic work, with carcinoma of the stomach furnishing the largest mortality.

A review of the records of lung complications following operations performed in the Presbyterian Hospital of Chicago was prompted by a desire to establish, if possible, the rôle which the anesthesia played in their causation.

Does the anesthetic contribute to the result? Does one anesthetic contribute to it more than another? Pathologic reports indicate that the anesthetic stands rather as one member of a group of agents which in general produce a similar clinical picture; nevertheless, the anesthetic should be carefully selected and judiciously administered.

GENERAL CONSIDERATIONS

In dealing with the process of infection through the upper respiratory tract, we have to reckon with the organisms usually inhabiting the mouth, throat and nose (*Staphylococcus albus* and *aureus*, diphtheroids, pneumococci and occasionally influenza bacilli and streptococci), colonizing in the lung epithelium. Conditions that might predispose to or influence such a contingency are general feebleness, especially in the aged, or lack of resistance in the individual, combined with a concentrated ether vapor, which is capable of destroying the protective epithelium, making colonization possible. That ether is likely to produce respiratory complications is questionable, particularly when a good anesthetic ether has been used and properly administered. The dreaded "mucus inundation," so frequently discussed by English authors, is certainly not witnessed in a properly conducted open administration. A too concentrated vapor during induction is responsible for the large majority of such accompaniments. Pulmonary lesions found after experimental etherization [1] can be satisfactorily accounted for by the concentration of the ether vapor. Dresser found that "the ether vapor within the closed mask sometimes reached a concentration as high as 34 per cent., while 6 or 7 per cent. is the strongest concentration which can be inhaled without irritation to the air passages." He regards any concentration of vapor which cannot be inhaled by a conscious patient without coughing as harmful to the lung epithelium. That ether is the only cause of pneumonia following its administration is contrary to clinical observation. The first deep note absolving anesthesia by the ether route as being responsible for all lung complications was sounded when Gottstein's report in 1898 from von Mikulicz' clinic in Breslau showed that lung complications as frequently followed local as general anesthesia. His studies have been verified by more recent investigators.

J. Frederick W. Silk [2] of London protests against the misleading term "ether pneumonia," which is still in vogue with certain writers. From August, 1915, to March, 1919, Silk was employed in visiting the principal war hospitals in the United Kingdom and the sick base at Malta, with a view to superintending and reporting on the administration of anesthetics. A thousand visits were paid to about 200 hospitals. "The complaints of postoperative bronchial and pulmonary troubles were frequent, and, in accordance with traditional teaching, were set down offhand to the anesthetic, especially when ether had been used." Silk observed that the complaints came from certain hospitals, and these troubles chiefly occurred in the practice of certain surgeons, and frequently the staffs of other hospitals in the immediate neighborhood were never troubled in this manner. In the work of individual surgeons, Silk was suspicious that an element of simple sepsis had to be considered, as in one hospital a half dozen patients had high temperatures for two or three days after operation before pulmonary symptoms appeared.

Postoperative pneumonia is frequently a lobar pneumonia, due to emboli which have entered the circulation at the site of the operation. The time at which the symptoms develop varies from a few hours to a week or more. They are sudden in their onset with pain in the chest, elevated temperature, cough and quick respiration and pulse. As a rule, constitutional disturbance is not great. Homans reported the consolidation of an entire lobe, following pulmonary infarction. This author says: "If such instances of obvious embolic infarction occur, may not others unrecognized serve as the origin of pneumonia, abscess or gangrene?" Bibergeil reported a case of lobar pneumonia in which multiple emboli were found in the pulmonary artery. Fractures of the long bones are occasionally

* Chairman's address, read before the meeting on anesthesia in the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Gatch, W. D.: The Use of Rebreathing in the Administration of Anesthetics, J. A. M. A. **57**: 1593 (Nov. 11) 1911. Dresser: Bull. Johns Hopkins Hosp. **6**: 7, 1895. Poppert: Deutsch. Ztschr. f. Chir. **67**: 505, 1902. Offergelt: Beitr. z. klin. Chir. **82**: 505, 1907.

2. Silk, J. F. W.: Am. J. Surg. **34**: 280 (Nov.) 1920.

followed by fat emboli, which produce infarcts of the lungs, the symptoms of which are so similar to pneumonia that it is sometimes difficult to differentiate the two.

In addition to the factors already mentioned, others doubtless come into play, such as excessive air limitations during etherization and the adoption of the same posture for a protracted period after operation, so that mucus plugging and hypostatic congestion are favored. Aspiration from the mouth or pharynx of foreign substances, both solid and liquid, weak heart action with low blood pressure producing hypostatic congestion, generalized sepsis, cooling of the body surface, diminished lung expansion caused by pain or tight bandages, and morphin, which allays the reflex excitability of the air passages and thereby favors the retention of aspirated material, all contribute their quota to lung complications. Undoubtedly many are secondary to some preexisting bronchial or lung affection, the effect of the anesthetic being secondary. In thirty-five of the fifty-five cases reported by Armstrong,[3] a septic focus in some part of the body was present before the development of the lung complication.

Patients who have painful abdominal wounds refrain from deep breathing and coughing, which favors basic engorgement of the lungs and the retention in the bronchi of blood, septic matter or vomitus which may have passed into the larynx. It is quite conceivable that the use of imperfectly cleaned rebreathing bags, tubes and masks may favor the occurrence of lung complications, particularly if the preceding patient had a recent acute mouth, throat or lung infection. Postoperative pneumonia may be caused by bacteria or their toxins, carried through the lymph or blood stream after operation on infected tissue, or by exacerbation of preexisting focal infections. Lung abscesses following tonsil and adenoid operations are held by some observers to be embolic in their origin, but the aspiration of septic material or fragments of tonsillar tissue directly through the air passages into the alveoli is a much more probable cause.

Preventive treatment of respiratory complications following operation is an exceedingly important consideration. Aspetic technic and a minimum traumatism of the tissues during operation decrease the possibility of thrombosis and embolism. The anesthesia should be as light and short as possible. No solid food should be allowed for at least six hours before operation. The stomach should be aspirated in emergency operations. The mouth and throat should be disinfected as far as possible with a mild wash containing alcohol. The head should be turned to the side to allow mucus to escape and prevent the aspiration of vomitus. The operating table should be covered by thick, dry pads and the patient by blankets to prevent loss of body heat during the operation and when being conveyed through halls and elevator shafts. Vierordt[4] gives eleven calories an hour as the normal elimination of heat by the lungs, and ninety calories by the skin. When these figures are contrasted, the necessity of preventing the loss of heat by the skin through radiation, evaporation and conduction is apparent.

The side posture during tonsil and adenoid operations is desirable, as it prevents blood from flowing into the trachea and the aspiration of infected tissue into the lungs. Respiration should not be hampered by tight bandages or unrelieved pain following abdominal operations, as the normal descent of the diaphragm is inhibited, thereby interfering with pulmonary ventilation, coughing and expectoration. In mouth, jaw and throat operations, an early awakening from the anesthetic is desirable, so that a semirecumbent or sitting posture may be assumed, to assist in clearing the bronchi of aspirated blood, pus or tissue.

3. Armstrong: Brit. M. J. 1: 1141, 1906.
4. Vierordt: Daten und Tabelen für Mediziner.

ANALYSIS OF A SERIES OF CASES

In a continuous series of operations performed in the Presbyterian Hospital of Chicago, lung complications occurred in 107 patients, fifty of whom died. There were thirty-one females and seventy-six males, and the ages ranged from 5 months to 90 years. Twenty-six patients developed pulmonary emboli, twenty-one of whom died, a mortality of more than 80 per cent. There were fifteen males and eleven females in this series. The ages ranged from 27 to 75 years. The time of development was: second day, one; third day, two; fourth day, three; fifth day, three; sixth day, three; seventh day, four; tenth day, three; twelfth day, two; thirteenth day, one; seventeenth day, one; twenty-first day, one; twenty-fourth day, one, and twenty-eighth day, one. The heart findings before operation were negative except in two patients who had mitral murmurs, and one who had a myocarditis. The lung findings were all negative except in one patient, who had an old healed tuberculosis. One patient, who suffered very severe electric burns about the genitalia and arm, developed two embolic infarctions, one on the fourth and one on the sixth day following the removal of necrotic tissue and skin grafting. Another patient developed a thrombophlebitis and lung infarct on the tenth day following a cholecystectomy, and a year later an embolism on the fourth day following the repair of a ventral hernia of several years' duration. Both of these patients recovered. Three emboli followed thrombophlebitis. The operations were: herniotomy, five; suprapubic prostatectomy, five; cholecystectomy, one; appendectomy (gangrenous or ruptured), two; hysterectomy, one; ovarian cysts, two; ectopic gestation, one; Porro cesarean section, one; panhysterectomy, one; resection of the bladder for carcinoma, one; ruptured uterus, one; osteochondroma of ribs, one; gastrostomy, one; varicose veins, one; carcinoma of the stomach, one, and burns, one. Ether was administered twelve times, gas-oxygen-ether thirteen times, and a local anesthetic once.

Lung Abscess.—Only the abscesses which developed after operations performed in the Presbyterian Hospital of Chicago are included in this series. There were four cases. One developed fourteen days after drainage of an infected gallbladder; one occurred on the thirteenth day after the removal of a ruptured, gangrenous appendix, and two followed tonsillectomies in adults. One of the latter patients had a turbinectomy under local anesthesia, followed by a tonsillectomy under gas-oxygen. The latter patient was anesthetized with ether, and it was known at the time of operation that she aspirated a fragment of tonsillar tissue. The former developed a lung abscess on the fifth day, and the latter on the fourth day after operation. The last patient recovered, and the other three died: a mortality of 75 per cent. The lung findings were negative in all before operation. One tonsil patient had a systolic blow in the aortic region. Two were given ether; one, gas-oxygen-ether, and one, gas-oxygen.

Pneumonia.—There were seventy-six cases of pneumonia, with forty-eight deaths, a mortality of 63 per cent. These figures include eight cases of pneumonia which were really terminal, as they occurred in patients with carcinoma of the esophagus, in whom gastrostomy was made on account of starvation. It also includes four cases of pneumonia which followed the extraction of foreign bodies from the bronchi (tacks, screws, bullets, etc.). Excluding these twelve, there remain thirty-six, a mortality percentage of 47.3. Twenty-five patients had some form of lung lesion before operation, and seventeen had heart lesions.

Stomach.—There were 153 operations on the stomach; nine of the patients developed pneumonia. The ages ranged from 42 to 75 years; all were men, and with one exception were suffering with carcinoma of the esophagus or inoperable carcinoma of the stomach. The time of development of the pneumonia was: second day after operation, one; third day, five; fourth day, one; fifth day, one, and seventh day, one. There were eight deaths, a mortality rate of 5.2 per cent. It is interesting to note that all of these patients were men, and all but one were suffering from carcinoma. One patient had a lung complication, and three had heart lesion before operation.

Gallbladder and Bile Tracts.—There were 1,381 cases in this series, with ten pneumonias. The ages ranged from 48 to 72 years. There were four women and six men. The time of development of pneumonia was: second day, one; third day, five; fourth day, one; fifth day, one; twenty-fourth day, one, and forty-eighth day, one. There were six deaths, a mortality rate of 0.4 per cent. Two patients had heart lesions, and three had lung complications before operation.

Appendectomy.—There were 1,560 appendectomies, with nine cases of pneumonia. All of these patients were males, and the ages ranged from 2 to 44 years. All were suffering with gangrenous or ruptured appendixes. There were five deaths, a mortality rate of 0.3 per cent. One had a heart lesion, and three had lung complications before operation. The time of development of pneumonia was: at the end of twenty-four hours, two; second day, one; eighth day, two; sixth day, one; eighth day, one; tenth day, one, and eleventh day, one. Seven were given ether, one gas-oxygen, and one a local anesthetic and gas-oxygen.

Herniotomy.—There were 1,872 cases, with nine pneumonias. Eight males and one female comprised this series, and the ages ranged from 5 months to 70 years. There were five deaths, a mortality of 0.26 per cent. One patient had a heart lesion, and three had lung complications before operation. An inguinal hernia in a child, aged 5 months, who was in the early stages of pneumonia, became strangulated, which necessitated an immediate operation. This was performed under local anesthesia, except a few inhalations of ether during reduction, as it was impossible to replace the intestine on account of the straining. Death occurred three days later. It is interesting to note that two patients developed delirium tremens concomitant with the pneumonia, and both died. The time of development of pneumonia was: second day after operation, one; third day, two; fourth day, one; fifth day, two; sixth day, two, and eighth day, one. Ether was the anesthetic administered to six; gas-oxygen-ether to two, and local anesthesia to one.

Prostatectomy.—There were 174 prostatectomies, and nine of the patients developed pneumonia following suprapubic prostatectomy. The youngest patient in this series was 50, and the oldest, 90 years of age. There were eight deaths, a mortality of 4.6 per cent. In analyzing the preoperative conditions of these patients, the high mortality percentage is explainable on the ground that a large majority of these men were suffering with sepsis and some pathologic condition of the lungs, as chronic bronchitis or a myocarditis, cardiac insufficiency, and more or less arteriosclerosis either of the coronary arteries or of the general arterial system. Nephritis was also an occasional accompaniment; age and general debility were important factors, especially in the hypostatic type of pneumonia, which developed in from one to four weeks after prostatectomy. The time of development of pneumonia was: second day, three; fourth day, one; tenth day, one; fourteenth day, one; twenty-sixth day, one; thirty-sixth day, one, and end of fourth week, one. Ether was administered to three; gas-oxygen-ether, to one; local anesthetic-gas-oxygen to one, and gas-oxygen to four. One patient with carcinoma of the prostate died from hypostatic pneumonia following a suprapubic cystotomy and the removal of a small piece of tissue for diagnosis. One patient with feeble heart tones and almost complete anuria developed double pneumonia four days after operation.

Pneumonia developed after other operations as follows: Two after tonsil and adenoid operations, one in a boy, aged 10 years, who had chronic bronchitis and asthma. A cellulitis of the hand was drained in a diabetic patient under gas, and three days after pneumonia developed concomitant with a large increase in the sugar content. One patient developed pneumonia after a low forceps delivery and perineorrhaphy; one followed a normal delivery on the third day, and one on the seventh day after a currettage for an incomplete abortion. Bronchopneumonia developed three days after an ileostomy under local anesthesia for ulcerative colitis. This patient had crepitant râles before operation, and was in a very weak, emaciated state. This was clearly a terminal pneumonia, as was also the pneumonia which occurred thirty-one days after the removal of a carcinoma from the floor of the mouth. There was only one instance of pneumonia following kidney operations, which occurred after the removal of a hypernephroma. Three followed osteomyelitis; one, a cleft palate; three, foreign bodies in the bronchi; one, fifteen days after the aspiration of a knee in a patient with streptococcus infection; one, after nerve suture; one, after an extensive plastic operation for roentgen-ray burns, psoas abscess, plastic vaginal work, tracheotomy, exploratory laparotomy in which atrophic cirrhosis of the liver was found, tumor of the spinal cord, thyroidectomy and cervical rib. One case of pneumonia was clearly an aspiration pneumonia, as the patient vomited solid food on the second day after operation, became alarmingly cyanosed, and recovered, and on the following day symptoms of pneumonia developed. Attention is called to the observation that twenty-five had lung involvement and seventeen had heart lesions before the pneumonia complication, while, with the exception of two patients who had mitral murmurs and one a myocarditis previous to pulmonary infarctions, the heart and lung findings were negative, and this was also true of the patients who developed lung abscess. No effort was made to designate the type of pneumonia, because it could not be done with any degree of certainty, as

many of the records simply stated "pneumonia"; furthermore, the time of development in many instances was determined through a study of the temperature sheets.

A woman, aged 29, developed acute miliary tuberculosis twenty-four days after a cholecystectomy, under gas-oxygen anesthesia. This patient had tuberculosis of both upper lobes of two years' duration.

Attention is called to the remarkable record of 12,045 tonsil and adenoid operations, with only four lung complications, two cases of pneumonia and two of lung abscess; also to the fact that about three times as many men developed lung complications as women in the total number of cases cited.

TRAINING IN SOCIOLOGY AND PUBLIC HEALTH AN ESSENTIAL IN MEDICAL EDUCATION *

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Near the home of my birth, where my youth and young manhood were spent, is one of the foothills of the Appalachian chain, which terminates in Alabama.

This mountain stands out boldly against the southern sky. I have spent hours in my childhood gazing upon it and wondering what was on the other side. In after years, when, to the music of a pack of foxhounds and the clatter of a good horse's hoofs, I reached its highest point, the thing that interested me most on the other side was not the beautiful plains, streams and wooded country, but still higher ranges of mountains in the distance, hiding other things.

I have recalled those dreams of my boyhood in my recent study of the work of the Council on Medical Education in its efforts since 1902 to elevate the standard of medical education in the United States. The history of this splendid work is as fascinating reading as a romance of the Elizabethan age. As in my boyhood experience, when high ground was reached, higher ground came into view, and point after point has been scaled until we stand today on a pinnacle of excellence unexcelled by any other country; but there is still higher ground beyond which we must reach.

There has been practically no advance in the teaching of preventive medicine in the last quarter of a century. Discoveries of methods of administration and methods of prevention have come forward by leaps and bounds, but they have remained to be learned by the physician after he has taken up his life work, and not in that important period when he is preparing for it. For that reason, habits of medical thought have not been directed along the lines of preventive medicine, but have been confined almost exclusively to the curative side of the science. We shall not reach the highest ground ahead of us until we have introduced into our schools of medical education a course of study which will bring the medical student into easy touch with natural laws governing the transmission and prevention of diseases, the methods to be employed by the health administrators in their control, and the part to be played by the medical profession in the accomplishment of this great task.

* Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

It is important to recognize that modern attempts to solve, or, at least, to reach an approximate solution of fundamental problems, have led in our own day to the development of a number of comparatively new sciences associated with the basic human needs: food, shelter, defense and propagation. They are still rudimentary in a large degree and practically unstandardized. For this reason they are likely to be lumped together in our minds under the general title of "the social sciences," and to receive from us scant consideration or respect. Examined closely, are not every one of these embryonic sciences which deal with the major problems of human existence fundamentally a part of medical science?

Who can say that "a knowledge of the living human body and its many complex normal functions and structures" is more important to the prospective physician than a knowledge of the food substances necessary to keep the body going or to bring it to maturity and productiveness?

Who can say that "a training in dispensaries and hospitals where the student can observe patients suffering from all the more common diseases" is more important to the future practitioner of the healing art than would be a training in courts and prison camps or in legislative halls, where he can study human nature in the raw, as it comes to grips with the problems of life?

If "he needs to be educated in regard to the many and varied forms of remedial agents and procedures which are of generally recognized value," is his need for an education in the many and varied forms of preventive work less imperative or less fundamental?

FIVE ESSENTIALS

If we grant, for the sake of the premise, that knowledge of remedial and preventive methods is of equal importance to the medical student, I am suggesting, for consideration, five essentials in the latter field which should be made a part of his medical education:

1. He needs to have a sympathetic understanding of the fundamental human problems in relation to the many complexities of modern life, and must become familiar with the trend of the best thinking along social lines.

2. He needs to know the place and function of sanitation in relation to the public welfare, the how and when and why of environmental influence on health. In other words, he needs to know when and how to make use of the knowledge of sanitary engineering, not necessarily to be himself a sanitary engineer.

3. He needs to be well grounded in the control of the communicable diseases and in bacteriology.

4. It is imperative that he should have a knowledge of hygiene, especially in its relation to the social and medical sciences which attempt to improve the race by approximating a solution of the basic problems of human existence; that is, the problems associated with the necessity for food, shelter, defense and propagation.

5. He needs to have a knowledge of psychology in its relation to conduct, with regard both to individuals and to groups, in order that he may truly educate both individuals and groups in right habits of action, by supplying motives which appeal to them.

The Council on Medical Education and Hospitals is recommending to the American Medical Association at this session that the last two years of undergraduate medical study be devoted to the four majors: practice

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of medicine, surgery, obstetrics and public health. The colleges will be asked to pay less attention to courses in special branches during the undergraduate term, and devote more time to the education of medical practitioners.

I believe that more attention to the subjects outlined in the foregoing paragraphs will equip men to render a service to the individual and the community which will eventually bring the practice of medicine to a level of achievement undreamed of in the past. I believe that men who have received such preparation will be ready after their graduation to practice medicine in cooperation with the many and varied agencies for social betterment, with a greater degree of mutual understanding.

CONCLUSION

Let me emphasize the belief that the higher ground toward which we are rapidly moving will afford to administrators of public health a steadily enlarging field of usefulness because of the better understanding by the medical profession of the proper relation between the prevention and the cure of disease, and the appreciation by it of the opportunity to take its proper place of leadership in this great movement toward social tranquillity and the improvement of the race.

CLINICAL AND BACTERIOLOGIC STUDY OF ONE THOUSAND CASES OF LOBAR PNEUMONIA

WITH SPECIAL REFERENCE TO THE THERAPEUTIC VALUE OF PNEUMOCOCCUS ANTIBODY SOLUTION: PRELIMINARY REPORT *

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In the fall of 1920, an opportunity arose for conducting an extensive study of lobar pneumonia in the wards of Bellevue Hospital. Through the kind cooperation of the directors of the other medical services, all cases of lobar pneumonia admitted to the twelve medical wards were carefully studied from the bacteriologic standpoint with the idea of determining, if possible, the relationship between the exciting agent and the clinical course of the disease. The main object of the investigation, however, was to test the therapeutic value of a serum-free solution of pneumococcus antibody.[1] This product was first prepared by F. M. Huntoon,[2] who has described it at some length in a series of recently published articles.

The antibody solution is thus prepared by Huntoon:

Horses are injected at regular intervals with emulsions of Types I, II and III pneumococci. The serum after a number of injections develops protective antibodies. To obtain a serum which protects mice against 1,000,000 lethal doses or more of Type I is readily accomplished. It is more difficult to obtain as high a protective power for Type II, and against Type III a serum can seldom be obtained which protects against more than 100,000 fatal doses.

To this serum is added an equal volume of a heavy emulsion of living pneumococci Types I, II and III. The mixture is placed at 37 C. for one hour or 20 C. for twelve hours, and then centrifuged. The sediment is washed with salt solution to rid it of horse serum. The washed sediment is emulsified in salt solution containing 0.25 per cent. sodium bicarbonate and heated to 55 C. for from thirty minutes to one hour. This causes dissociation of the pneumococcus (antigen) and antibody. The mixture is centrifuged, and the supernatant fluid removed, chilled, recentrifuged and finally filtered through a filter candle. The final solution, which contains only 0.035 mg. of nitrogen per cubic centimeter, is in many lots able to protect mice against as many fatal doses of pneumococcus Types I, II and III as the original serum from which it was made.

This preparation is therefore a practically serum-free, aqueous solution of specific pneumococcus antibodies. It contains protective substances against pneumococcus Types I, II and III equal in amount to potent polyvalent antipneumococcus serum, yet is almost entirely free from the proteins of horse serum. It also contains, in addition to antibody, a small amount of pneumococcus protein which may conceivably act in the capacity of a vaccine and thereby induce a certain amount of active immunity.

In some experiments which will be published later, the therapeutic value of pneumococcus antibody solution has been tested in experimental pneumococcus pneumonia in monkeys. The results of these experiments are in agreement with protection tests on mice. The most striking results were observed in experimental pneumococcus Type I pneumonia. Following the injection of antibody, pneumococci immediately disappeared from the blood, and the animal made a rapid recovery. When antibody was administered to monkeys that had been inoculated with lethal doses of pneumococcus Type II, the results were not so striking. A certain number, however, were saved by this mode of treatment. In the case of experimental Type III pneumonia, no benefit whatever could be obtained by treating the infected monkeys with antibody solution. Since the antibody solution displays its highest protective power in mice against pneumococcus Type I, next highest against pneumococcus Type II and least against pneumococcus Type III, it would appear that the beneficial effect induced by its administration is, in large measure, proportional to the amount of protective substance present.

CLASSIFICATION OF CASES

An effort was made to determine the type of infection in every case of pneumonia in the series. For one reason or another this effort was unsuccessful in some instances, but in the majority of cases (92 per cent.) the exciting agent was isolated.

The mouse method was used almost exclusively in the examination of sputum. Agglutination and precipitation tests were carried out with the mouse exudate, and at the same time cultures were made on blood agar plates from both the heart's blood and peritoneum of the mouse. Whenever the readings from the mouse exudate indicated pneumococcus Type IV or atypical pneumococcus Type II, colonies were fished from the plates and the pneumococcus was retyped from the broth culture. Typings from cultures were also made whenever the mouse exudate gave a doubtful reaction. Practically all fatal cases were checked with postmortem cultures.

All cases of clinical pneumonia from which a pneumococcus was isolated were included in the series.

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* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* From the Second Medical (Cornell) Division and the Pathological Department of Bellevue Hospital, and the Hygienic Laboratory of the U. S. Public Health Service. This study also received financial aid from the Metropolitan Life Insurance Influenza Fund.

1. The pneumococcus antibody solution employed in this work was supplied by the Mulford Laboratories.

2. Huntoon, F. M.: J. Immunol. 6: 117 (March) 1921.

Practically all of these were lobar in type. Cases with frank consolidation of one or more lobes were also included, even if cultures failed to reveal pneumococci. A few cases of *Streptococcus hemolyticus* pneumonia were encountered in which the signs were not absolutely frank, but in every other respect the patients presented the picture of a lobar pneumonia. They were therefore included in the series.

TABLE 1.—BACTERIOLOGIC CLASSIFICATION OF ONE THOUSAND CASES OF LOBAR PNEUMONIA

Organism	Number of Cases
Pneumococcus Type I	320
Pneumococcus Type II	150
Pneumococcus Type III	133
Pneumococcus Type IV	231
Streptococcus hemolyticus	52
Streptococcus viridans	22
Bacillus influenzae	3
Bacillus of Friedländer	4
Staphylococcus aureus	2
Unclassified	83
Total	1,000

In Table 1 the 1,000 cases included in the present study have been classified according to the type of micro-organism isolated. In cases of mixed infection the pneumococcus has been given the preference; that is, if the sputum showed both pneumococcus and streptococcus, the case has been classified as a pneumococcus pneumonia. Cases in which pneumococcus was absent and streptococcus was associated with the influenza bacillus have been classified as streptococcus pneumonia. It will be seen from this table that out of 1,000 cases studied, 917 could be classified bacteriologically. In eighty-three cases either no pathogenic organisms were found in the sputum, or for some reason or other the sputum was not examined.

Of the 917 classified cases, 834, or 90 per cent., showed some type of pneumococcus. The remaining 10 per cent. were mostly streptococcus pneumonias. There were three cases in which *Bacillus influenzae* was isolated in pure culture from the sputum; there were four cases of Friedländer bacillus pneumonia, and two cases of *Staphylococcus aureus* pneumonia.

TABLE 2.—CLASSIFICATION OF EIGHT HUNDRED AND THIRTY-FOUR CASES OF PNEUMOCOCCUS PNEUMONIA

	Number of Cases	Incidence, per Cent.
Pneumococcus Type I	320	38.4
Pneumococcus Type II	150	18.0
Pneumococcus Type III	133	15.9
Pneumococcus Type IV	231	27.7
Total	834	

Table 2 shows the incidence of the various types of pneumococcus pneumonia. Out of a total of 834 pneumococcus pneumonias, 320, or 38.4 per cent., showed pneumococcus Type I; 150, or 18 per cent., showed pneumococcus Type II; 133, or 15.9 per cent., pneumococcus Type III; 231, or 27.7 per cent., pneumococcus Type IV. When these figures are compared with the figures of Dochez and Gillespie,[3] it will be seen that the incidence of Types I, III and IV pneumonia in the present series is slightly higher than theirs, while that of Type II is much lower. At the conclusion of the first year of this study, the incidence of Type I pneumonia was 42 per cent. of the total pneumococcus group. Type I pneumonia is therefore the commonest type of pneumococcus pneumonia, Type III the rarest.

Space will not permit a discussion in this paper of streptococcus pneumonia and the other more unusual forms. They will be considered in detail in a future article. Our interest was centered chiefly in pneumococcus pneumonia, since the agent which we proposed to test therapeutically was directed against this variety.

METHOD OF CONDUCTING ANTIBODY EXPERIMENT

In order to determine the therapeutic value of pneumococcus antibody solution, the twelve medical wards of Bellevue Hospital were divided into two groups. In six wards, all cases of lobar pneumonia were treated with the antibody solution. The other six were used as control wards. In these wards, patients with pneumonia received no antibody, but in other respects were treated in practically the same way as the patients receiving antibody. It was first determined that no selection of any kind was practiced by the admitting office in assigning patients to the various wards. In Bellevue Hospital, new patients are distributed by rotation, without regard to the character or severity of the disease. The control seemed, therefore, to be a fair one from every point of view.

RESULTS OF TREATMENT WITH ANTIBODY

Antibody treatment was started as soon as the diagnosis of pneumonia was made. The solution was given intravenously in most cases, the technic being similar to that of serum administration. The dose was from 50 to 100 c.c. given once, sometimes twice, occasionally three times a day.

The reactions produced by this solution have been one of the most striking features of the study, and deserve especial attention. The typical reaction may be thus described: There is no immediate reaction. From twenty to forty minutes after the injection, the patient begins to shiver and is soon in the midst of a hard chill. The cyanosis and dyspnea become more marked, and the patient often shows extreme anxiety. The chill lasts from fifteen to thirty minutes. At its conclusion, the patient complains of fever, and the temperature may have risen to 106 F. or even to 108 or 109. In rare cases, the temperature may rise to 110. In one case, the rectal temperature was too high to be recorded on the thermometer. When the thermometer was removed, the bulb was missing, and a careful reading of the mercury column recorded 113.1! The patient was wildly delirious during this period of hyperpyrexia, but ice packs were followed by a rapid drop, and on the next morning he showed a normal temperature and made an uncomplicated recovery.

In a certain number of cases, morphin and atropin have been administered subcutaneously one-half hour before the injection of antibody, with the hope that such a procedure would mitigate the severity of the reactions. In general, it may be said that the reaction was somewhat less intense after morphin and atropin, but the effect was not striking. An effort was also made to determine what relationship existed between the severity of the reaction and quantity of antibody injected. In our experience, the reaction is not directly proportional to the antibody dosage. Ten or fifteen cubic centimeters of antibody have in some cases produced sharp reactions, while in other cases 100 or even 200 c.c. has excited no reaction whatever. As a rule,

3. Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, J. A. M. A. 61:727 (Sept. 6) 1913.

however, the reactions are somewhat more severe and last longer when large doses are administered.

The high temperature usually persists for only a short time: from thirty to sixty minutes. The rapid fall is accompanied by a profuse perspiration, which often drenches the patient's linen, and which may continue for several hours. The fall may be slight, but is usually extensive, often reaching normal or even subnormal limits. It may be temporary or permanent. It is more likely to be temporary if treatment is started early; permanent if the injection is given when the crisis is about due. In some cases, however, one or two injections appear to abort the infection completely, and the temperature remains normal on the third or fourth day of the disease.

These reactions have every appearance of the so-called "foreign protein reaction." They usually follow each injection of antibody, but tend to become somewhat less severe with each paroxysm.

In three cases, the reaction following injection with antibody appeared to be the immediate cause of death. In these three patients, the symptoms were very severe: chill, followed by high fever (from 106 to 109), delirium, cyanosis, dyspnea, rapid weak pulse, diaphoresis, congestion of lungs, coma and death. In two of these cases death was apparently due to cardiac failure. In the third case a long continued hyperpyrexia was probably responsible for the fatal termination.

TABLE 3.—COMPARISON OF DEATH RATE IN TREATED AND CONTROL SERIES

Type	Antibody Wards			Control Wards		
	Cases	Deaths	Rate %	Cases	Deaths	Rate %
Pneumococcus I	158	21	13.3	162	36	22.2
Pneumococcus II	89	23	27.7	67	27	40.3
Pneumococcus III	73	29	39.7	60	24	40.0
Pneumococcus IV	110	18	16.4	121	29	24.0
Total	424	91	21.4	410	116	28.3
Streptococcus, etc.	48	24	50.0	35	12	34.3
Unclassified	36	14	38.8	47	20	42.5

Treatment with antibody was usually continued until the temperature of the patient came down and remained below 100 permanently. Occasionally, one injection was sufficient. More frequently, from three to six injections were necessary. The average number of injections was 3.6 for each patient, and the total amount of antibody administered averaged 225 c.c. for each patient.

The results of the experiment are shown in Table 3. It will be observed that 424 cases of pneumococcus pneumonia occurred in the antibody wards, and 410 in the control wards. Nearly all the patients in the antibody wards were treated with this solution, the only exceptions being patients that were convalescent or who showed signs of cardiac failure on admission. These exceptions, however, were counted as "treated" in the statistics given below. There was considerable difference in the mortality rate for Type I cases, 13.3 per cent. for the 158 treated cases, as compared with 22.2 per cent. for the 162 untreated cases. In the Type II groups the treated cases showed a death rate of only 27.7 per cent., as compared with the control death rate of 40.3 per cent. In the Type III series, the percentage of fatalities was practically the same for the two groups, 39.7 per cent. for the treated; 40 per cent. for the untreated cases. Strangely enough, a considerable difference in mortality rate was noted in favor of the treated Type IV group, 16.4 per cent. against 24 per cent. Altogether, the treated pneumococcus cases showed a death rate of 21.4 per cent., while the control pneumococcus series presented a rate of 28.3 per cent.

Streptococcus pneumonia was not benefited in the least by antibody treatment. In fact, the death rate was higher for the treated series (50 per cent.) than it was for the untreated series (34.3). The number of cases, however, in the streptococcus groups is too small to permit of accurate conclusions.

In the small group of unclassified cases, the death rate was slightly lower for the "treated" wards (38.8 per cent.) than for the control wards (42.5 per cent.), but most of the former group did not actually receive antibody.

EFFECT OF ANTIBODY ON BLOOD CULTURES

Blood cultures were taken in 110 cases out of the total pneumococcus series. Of these, thirty-one cases, or 28 per cent., were positive. In several cases of pneumococcus Type I pneumonia, the blood became sterile after one administration of antibody. In one case of pneumococcus Type I pneumonia with 146 pneumococcus colonies to each cubic centimeter of blood and a complicating meningitis, three administrations of antibody of 100 c.c. each reduced the number of colonies to fifteen per cubic centimeter of blood, though the meningitis proved fatal. In two fatal cases of pneumococcus Type I pneumonia which were treated with antibody, blood cultures taken at the time of death were sterile. Postmortem cultures were taken in all but three of the fatal cases of pneumococcus Type I pneumonia. With two exceptions, these cultures showed living pneumococci in the lungs in spite of the previous administration of large amounts of antibody. In two of the fatal antibody cases, postmortem cultures showed that Type I pneumococcus had been entirely replaced by *Streptococcus hemolyticus*.

In fatal cases of pneumococcus Type II pneumonia, pneumococci were recovered from the lungs in spite of the previous administration of large amounts of antibody. In two of these cases, antibody failed to affect the number of pneumococci in the blood. In one case of pneumococcus Type II pneumonia, blood cultures taken before, immediately after and three hours after the administration of 200 c.c. of antibody did not show any numerical change. On the other hand, in one control Type II pneumonia, the count on three successive days was forty-two, thirty and three colonies per cubic centimeter, respectively, and on the fourth day the blood was sterile. One week later, however, the patient developed pericarditis and died.

In serious Type III and Type IV pneumonias with positive blood cultures, the repeated administration of antibody failed to influence the colony count.

CASES ILLUSTRATING EFFECT OF ANTIBODY TREATMENT

The following cases, selected from the series of cases treated with antibody, will serve to illustrate the character of the reactions and the effect of this agent on the course of the disease. They have been chosen, not to illustrate the most striking results, but as examples of various types of reactions:

CASE 1.—J. S., a man, aged 31, with pneumococcus Type I pneumonia of the left lower lobe, at 1 p. m. on the second day of the disease received 50 c.c. of pneumococcus antibody intravenously. Twenty minutes later, he had a severe chill, and the temperature rose from 102 to 108 (Chart 1). This

sudden rise was followed by a rapid fall to 103, and by the following morning the temperature read 101. A second injection of 50 c.c. was given on the third day, and was followed by a less severe reaction. The temperature remained below 103 on the fourth day, and no antibody was administered. On the fifth day a third and final injection of antibody (50 c.c.) was given. This produced a mild reaction which was followed by complete recovery.

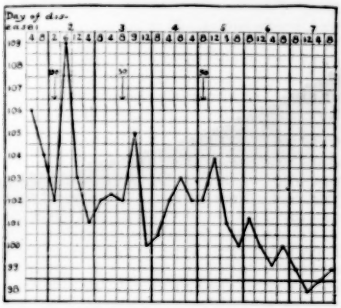


Chart 1.—Temperature in Case 1.

This case illustrates well the "stair-step" temperature curve which characterizes many cases of pneumonia treated with antibody. The first reaction is severe, and accompanied by a high shoot of temperature. With each succeeding injection the reaction is less marked, and the temperature steps down to normal.

CASE 2.—H. D., a boy, aged 15, with pneumococcus Type I pneumonia of the right upper lobe, received the first injection of antibody on the fourth day of the disease. Although he received 100 c.c. intravenously, he showed very little reaction to the antibody, and the temperature did not rise (Chart 2). During that day and the two days following, this patient received, in all, eight intravenous injections of antibody, seven of 100 c.c., the last of 50 c.c. No reaction of any consequence was noted after any of the injections, and the temperature maintained a fairly level plateau. Crisis occurred on the seventh day.

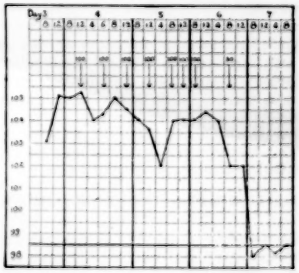


Chart 2.—Temperature in Case 2.

This case illustrates the comparatively rare type of case in which antibody produces little, if any, reaction. The antibody injections induced neither chills nor variations in temperature. In this particular case, however, the general condition of the patient appeared to be favorably influenced by the treatment.

CASE 3.—M. R., a man, aged 27, with pneumococcus Type I pneumonia of the right middle and lower, and left lower lobes, received his first injection of antibody on the fourth day of the disease. Altogether he received thirteen intravenous injections of 50 c.c. each. Most of these injections were followed by definite reactions, but the temperature never dropped to normal even temporarily (Chart 3). The disease ran a rather long course, with crisis on the eleventh day. Ten days later, the patient developed a pneumococcus Type I empyema. Thoracotomy and drainage were performed, and the patient eventually recovered.

This case exemplifies a group in which antibody is followed by reactions, but in which the temperature does not drop to normal. The antibody appeared to exert very little influence on the duration of the disease, though the patient usually appeared more comfortable after the administrations.

CASE 4.—J. P., a man, aged 42, with pneumococcus Type II pneumonia of the right lower lobe, on the third day of the disease received 50 c.c. of antibody intravenously. This was followed by a sharp chill and rise of temperature to 107.4 (Chart 4). During the next few hours the temperature fell rapidly to 100. The following morning, a second injection of 50 c.c. was given. Again the patient reacted with chill and fever of 104.5, and, following this, was free from symptoms.

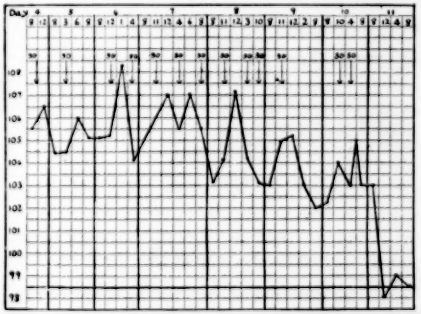


Chart 3.—Temperature in Case 3.

This case is a good instance of an abortive pneumonia terminating on the fourth day, a phenomenon so rare with pneumococcus Type II pneumonia that one is disposed to credit antibody for its occurrence.

CASE 5.—P. N., a woman, aged 60, with pneumococcus Type III pneumonia of the right lower lobe, received the first injection of antibody on the third day of the disease. She received three injections of 50 c.c. each on that day, and two injections of 50 c.c. each on the day following (Chart 5). There was a sharp reaction after the first injection, and there were definite reactions after each of the other four. Crisis occurred on the fifth day.

This case illustrates a pneumococcus Type III pneumonia that appeared to react favorably to antibody. Unfortunately, there were not a great many in this group. As pointed out previously, the death rate for Type III pneumonia was not appreciably affected by antibody treatment.

CASE 6.—F. H., a man, aged 44, alcoholic, with pneumococcus Type III pneumonia of the right and left lower lobes, received the first injection of antibody on the fifth (or sixth) day of the disease (Chart 6). He received altogether twenty-

eight injections of antibody over a period of eight days. The blood culture remained positive, and the patient died of a terminal pneumococcus Type III meningitis.

In this case, antibody appeared to have no effect whatever on the course of the disease. In spite of huge doses (a total of 1,650 c.c.) of antibody, pneumococci persisted in the blood stream, and the patient died of pneumococcus meningitis.

From these examples it will be seen that antibody does not always act in the same way. While reactions usually do occur, they may be entirely absent. A reaction may follow one injection and be lacking after the next. There may be a severe chill or a mild one. A rise of temperature may follow an antibody injection, even though the chill did not occur. Profuse diaphoresis is sometimes seen without any preceding chill. Finally, the antibody may produce a striking effect on the course of the disease, or it may produce no effect whatever. In experiments on mice, it is well established that while antibody often protects these animals against 1,000,000 fatal doses of pneumococcus culture, no amount of antibody will protect them if overwhelming doses of culture are injected. The same principle probably holds true for man.

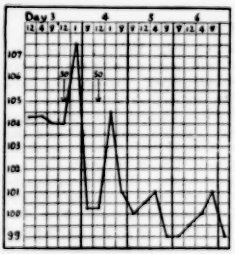


Chart 4.—Temperature in Case 4.

No examples of pneumococcus Type IV pneumonia have been included, as the antibody reactions in this group differ in no way from those in the fixed types.

EFFECT OF ANTIBODY ON DURATION OF DISEASE

Antibody treatment appears to have shortened the course of the disease in a considerable number of cases. In Table 4 it will be noted that in a series of 118 patients treated with antibody on or before the fifth day, thirty-four, or 28.8 per cent., showed normal temperatures on or before the fifth day of the disease; while in 201 control patients admitted on or before the fifth day, only sixteen, or 7.9 per cent., showed a normal

TABLE 4.—DURATION OF PNEUMONIA IN PATIENTS THAT RECOVERED

	Antibody Wards			Control Wards		
	Tot. No. Tr.	T. 99	Per Cent.	Tot. No. Adm.	T. 99	Per Cent.
On or before 5th day.....	118	34	28.8	201	16	7.9
On or before 6th day.....	143	69	48.2	225	41	18.2
On or before 10th day....	...	91	31.8	...	118	42.0

temperature on or before the fifth day. In a similar way, 48 per cent., or almost half, of the patients admitted on or before the sixth day, had a normal temperature on or before the sixth day of the disease; while only 18.2 per cent. of the controls reached normal in the same length of time. On the other hand, only 31.8 per cent. of the treated patients continued to have fever until the tenth day of the disease or thereafter, while 42 per cent. of the controls had elevated temperatures for ten days or more.

EFFECT OF ANTIBODY ON COMPLICATIONS

Table 5 shows the incidence of complications in the treated and control series. In 424 pneumococcus patients admitted to the antibody wards, empyema occurred thirty-one times, with eleven deaths; whereas 410 pneumococcus cases in the control wards were complicated by empyema thirty-two times, with fifteen

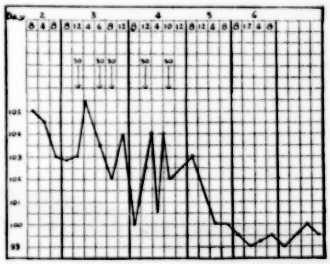


Chart 5.—Temperature in Case 5.

deaths. Meningitis occurred seven times in the treated series, and eleven times in the untreated. Endocarditis or pericarditis was observed six times in the treated

TABLE 5.—INCIDENCE OF COMPLICATIONS IN TREATED AND CONTROL SERIES

	Antibody Wards 424 Pneumonia Cases		Control Wards 410 Pneumonia Cases	
Complications	Total No.	Deaths	Total No.	Deaths
Empyema	31	11	32	15
Meningitis	7	7	11	11
Endocarditis, pericarditis	6	6	9	9
Arthritis	0	0	2	2
Total	44	24 (54.5)	54	37 (68.5)

cases, and nine times in the untreated cases. There were no cases of arthritis in the antibody series, and two cases in the control series. Altogether, there were forty-four severe complications in the antibody wards,

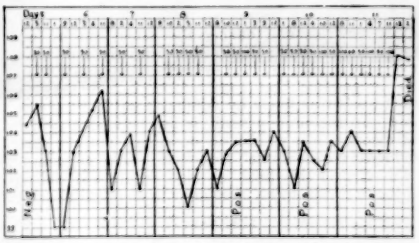


Chart 6.—Temperature in Case 6: *Pos* and *Neg*, blood culture positive or negative.

with twenty-four deaths (54.5 per cent.), and fifty-four severe complications in the control wards, with thirty-seven deaths (68.5 per cent.).

From these figures it will be seen that there is no evidence to show that treatment with antibody increases the incidence of empyema or any other severe complication. In the case of each of the severe complications,

the incidence rate was less for the antibody series than for the control series.

RESULTS

From the evidence presented above it may be concluded that pneumococcus antibody solution is a therapeutic agent of considerable power. The most striking results are undoubtedly obtained in pneumococcus Type I pneumonia. The results in pneumococcus Type II pneumonia are not so impressive, and in pneumococcus Type III cases the antibody solution seems to possess no benefit whatever. It would appear from these facts that antibody solution owes its therapeutic value chiefly to the amount of protective substance present. Just why a considerable difference in death rate has been observed between the treated and the untreated pneumococcus Type IV pneumonias, we are unable to say. The beneficial effect of antibody is probably not referable to the shock reactions, otherwise an improvement would be expected in pneumococcus Type III and in streptococcus pneumonia as well as in the other pneumococcus types. As a matter of fact, the reactions associated with antibody injections are often very uncomfortable and in certain cases are actually injurious to the patient. It has been claimed, of course, that foreign protein reactions have therapeutic value in pneumonia and other infectious diseases. There is little evidence, however, in the present study to support such a theory.

Patients treated with antibody have never shown any symptoms of serum sickness, and this is a great point in its favor. Furthermore, there is no danger of anaphylactic symptoms following the administration of antibody.

Perhaps the most important feature of antibody is its polyvalent nature. It contains protective substance against the three fixed types of pneumococcus. Furthermore, the statistics on Type IV pneumonia indicate that it has some therapeutic value in this type also, probably the result of cross protection. In the treatment of 424 pneumococcus pneumonias, the death rate was 21.4 per cent., while, in 410 control cases, the death rate was 28.3 per cent. In other words, the figures indicate that in every hundred patients with pneumococcus pneumonia treated there was a saving of seven patients. This difference between two almost equal groups of unselected patients, coming from similar environment, during the same seasons, and treated in the same institution, certainly must have some significance.

It is possible that considerable benefit could be derived from antibody by administering it subcutaneously. In the present study it has been employed in this manner on a number of occasions, and has never produced constitutional reactions. Our experience, however, with this form of administration is still too limited to permit of an opinion as to its practical value.

SUMMARY

1. In a series of 917 cases of lobar pneumonia in which a definite bacteriologic diagnosis was obtained, 90 per cent. were of pneumococcus origin. The greater part of the remainder were referable to *Streptococcus hemolyticus* or *Streptococcus viridans*.

2. In the pneumococcus series, pneumococcus Type I predominated (38.4 per cent.). Pneumococcus Type IV was next in frequency (27.7 per cent.); pneumococcus Type II (18 per cent.); pneumococcus Type III (15.9 per cent.).

3. In 424 cases of pneumococcus pneumonia treated with pneumococcus antibody solution, the death rate was 21.4 per cent. A control series of 410 cases in the same institution showed a death rate of 28.3 per cent.

4. Pneumococcus antibody produces its most striking effect in pneumococcus Type I pneumonia. In a series of 156 treated cases the death rate was 13.3 per cent.; while a control series of 162 cases showed a death rate of 22.2 per cent. A definite but less marked effect was observed in cases of pneumococcus Types II and IV pneumonia which were treated with antibody. The antibody solution had no effect whatever on the death rate in pneumococcus Type III pneumonia.

5. The death rate of streptococcus pneumonia was not favorably influenced by antibody treatment.

6. In the series of patients with pneumococcus pneumonia treated with antibody, 28.8 per cent. recovered on or before the fifth day. In the control series, only 7.9 per cent. recovered on or before the fifth day.

7. There were forty-four severe complications in the series of 424 pneumococcus pneumonias treated with antibody, while the control series of 410 pneumococcus pneumonias showed fifty-four severe complications.

33 East Sixty-First Street.

ABSTRACT OF DISCUSSION

DR. F. M. HUNTOON, Glenolden, Pa.: We utilize the principle that antibodies in serum will combine with the bacteria with which the animals were immunized. By exposing bacteria to these immune serums, one causes the antibodies to attach themselves to the bacteria. Then by heating the sensitized bacteria in an alkaline solution, one can cause the antibody to split off. That, in brief, is the method of preparation of these antibody solutions. I want to emphasize not only the large number of cases observed but also the adequate control used in this series. There is an advantage in the cooperation of institutions for scientific interest. Five different institutions had combined resources to gain something of possible scientific value. The aim from the start has been to find out whether this material was therapeutically efficient. If so, it represented a distinct biologic advance, since we had eliminated the horse serum from consideration. The production of serum protein-free solutions has enabled us to do some research on the chemical nature of the antibody. An antibody is a definite substance. It is not a globulin, and if it is a protein at all, it is a peculiar albumin which is not destroyed by alcohol. It is not a fatty substance, and it is not injured by trypsin digestion. We can say what it is not, but we cannot say what it is.

DR. NELLIS B. FOSTER, New York: This antibody extract is being tried experimentally in two institutions: in Bellevue Hospital under Dr. Cecil, and in the New York Hospital under Dr. Connor and myself, both services being parts of the Cornell Medical School. In an experiment of this kind it is necessary to have a large amount of data to prove anything at all. Last year we had a large number of cases, but at the end of the year we did not feel that we had results that justified making a statement, and at present we do not feel that we have perfect therapeutic measures for treating pneumonia; but we do feel that we are one step farther in developing a substance for treating pneumonia. There are statistics on mortality at the New York Hospital for more than a hundred years. The mortality has never been lower than 25 per cent. During the last two years, it has been materially reduced by the use of this antibody extract, because that is the only material change in treatment during the last two years. Still, in the aggregate of several hundred cases of true pneumonia, we do not yet feel certain where we stand. Pneumonia is a disease which changes from year to year, and in a city like New York it has a higher mortality than in a rural population.

DR. WILLARD J. STONE, Pasadena, Calif.: I should like to ask Dr. Huntoon whether he has reason to believe that the subcutaneous use of this product would be followed by good results.

DR. HUNTOON: I have no experience to decide the question. I know only the laboratory side.

DR. MARY FREEMAN, Perrine, Fla.: I should like to ask whether there were fatalities from the immediate reaction after the giving of that serum. The clinical or medical side is waiting too much for the laboratory. I appreciate the work the laboratory is doing, but if physicians will study and heed the symptoms of patients and keep the chest and the back of the arms well covered, remembering the relation of the brachial plexus to the thoracic and other nerves of the chest, many a time the giving of an opiate to check the cough will be unnecessary. A chill should never be allowed to stike the chest. I have the advantage of having a warm climate but, even in Florida, after the air cools off it is necessary to warm it. In my practice, I put a sweater over the nightgown and I apply a hot kaolin poultice. For elimination, in my practice I give castor oil and turpentine every day to an adult until resolution sets in. If he needs any liver medicine, he gets sodium bicarbonate. Atropin is the sheet anchor in pneumonia. I start its use in pneumonia before the crisis comes, so that the patient has a blood pressure that will hold him through an ordinarily difficult situation.

DR. ALEXANDER LAMBERT, New York: My ward belonged to the control group of which Dr. Cecil spoke. The feelings of the patient and the result obtained produced an impression even more favorable than the figures show. There was, however, a peculiar variation in the different wards. Among the controls the percentage varied, and the death rate varied from 14 to 64 per cent.; but the general totals were exactly as Dr. Cecil gave them. There has been a great change in the pneumonias in New York City. When we had all the alcohol that was desired in life, in Bellevue Hospital one third of the 40,000 patients were in the alcoholic wards with or without delirium tremens. That made a strong alcoholic group among pneumonia patients, and the death rate was 66 per cent. for the alcoholic group and 23 per cent. for the non-alcoholic group. The type has changed. One does not see the thoroughly poisoned, chronically soaked alcoholic person in the hospital. The change in pneumonia has also been distinct. We had two wards of fifty patients each; in one group alcohol was given, and the death rate was 40 per cent.; in the other group alcohol was not given, and the death rate was 14 per cent. Oddly enough, the April pneumonias in New York usually have a higher death rate than do the pneumonias in the winter.

DR. RUSSELL L. CECIL, New York: I tried subcutaneous inoculation on some very ill patients to whom I was afraid to give antibody intravenously. The results were not striking, but I will try it more extensively, and I expect also to try subcutaneous treatment on monkeys. In monkeys with experimental pneumonia, our results with antibody treatment were best in pneumococcus Type I cases, next best in Type II, and worst in Type III. As to the fatal reactions: If a patient with pneumonia dies within a certain number of hours after an injection of antibody, the question naturally arises whether antibody killed the patient. In my series there were three deaths probably directly due to the antibody. In one case the cause of death was hyperpyrexia. In the other two cases, the cause was failing circulation. As a result of these unfortunate reactions, I have become cautious about giving antibody to older persons or to pneumonia patients late in the disease, when they are worn out. I have figures based on my series of cases which indicate that the results are much better when the treatment is started early in the disease. These patients feel better after the injection of antibody. If they have a pain in the side, it usually disappears, and they have a general sense of well-being which is quite noticeable. The change in the pneumonia death rate of which Dr. Lambert spoke is a striking thing. In Bellevue Hospital, the death rate before prohibition was from 40 to 55 per cent.; but the present death rate is only 28 per cent. With regard to the leukocyte reactions following antibody injections, I have curves which show a decided leukocytosis, which, however, is seen shortly after giving the antibody solution, and is only temporary.

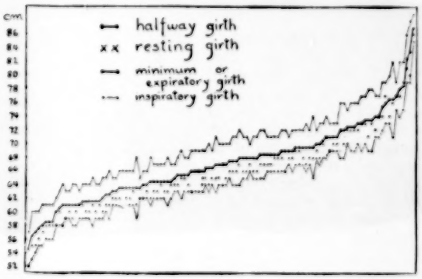
AGAINST MEASURING THE CHEST GIRTH AT REST *

HORACE GRAY, M.D.
BOSTON

Recent biometric evidence that body weight is more closely correlated with chest-girth than with stature [1] brings up anew the ancient questions as to technic.

The three levels cannot be entered on here save to state that the axillary has been generally discarded, the mammillary has been used by me in accordance with most medical men, and the xiphoid is very appealing for further study with reference to avoidance of the considerable pectoral muscle and gland tissue in men and women.

The moment of the respiratory cycle is the question aroused by the favor accorded by Dreyer [2] to the variously called resting, relaxed, talking, normally breathing, and not expanded chest circumference. The brief evidence so far presented [3] to indicate the inferiority of the resting girth to the halfway girth (arithmetical mean between the inspiratory and expiratory girths) has seemed to need amplification.



Chest-girth, nipple level, net, of 114 private school boys, arranged according to size of "halfway girth" (heavy line); note irregular position of "resting girth" (indicated by crosses) with relation to "minimum or expiratory girth" (circles); inspiratory girth, light line above.

The subjects studied composed two normal series, one of forty men, the other of 114 private school boys. The resting girth was greater than the halfway girth in 18 per cent. of the first series of men, equal in 17 per cent., and less in 65 per cent.; while in the boys' group the respective percentages were 2, 8 and 90. These figures signify that in men generally and in children nearly always the resting girth diverges from the mean girth in the direction of the girth deflated, as shown in the accompanying chart.

More important is the degree of divergence of the resting girth from the midway girth. In the men the average was 0.7 cm., or less than 1 per cent. of the mid-

* Read before the Philadelphia Pediatric Society, May 9, 1922.

1. Gray, Horace: The Relation of Weight to Chest-Girth, Stature, and Stem-Length, Judged by the Biometric Coefficient of Correlation, Am. J. Physical Anthrop., to be published.

2. Dreyer, Georges, and Hanson, G. F.: The Assessment of Physical Fitness, London, 1920, reprinted by Paul B. Hoeber, New York, 1921.

3. Gray, Horace, and Root, H. F.: Weight Prediction by the Formulae of Bornhardt, of von Pirquet, and of Dreyer, Boston M. & S. J. **185**: 28 (July 7) 1921.

way girth; while in the children the error was considerable, 1.3 cm., or about 2 per cent., and reaching 3.5 cm., or 4.2 per cent. of the mean girth.

Furthermore, the actual measurement of the resting girth appears to be associated with a somewhat larger error. The facts are that in ten children, each twice remeasured with fresh application of the tape, the first measurement (i. e., the only measurement ordinarily taken) differed from the average of the three successive measurements by 5.7 per cent. for the resting girth, versus 4.9 per cent. for the mean.

The conclusion is that the chest girth should not be measured at rest, except as a necessity in children who do not breathe freely, as occurs not infrequently under 6 years of age. Measurements are better taken at both full inspiration and complete expiration, and the average used as the midway girth.

32 The Fenway.

THE TREATMENT OF TUBERCULOUS CERVICAL ADENITIS *

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From the time when Aristotle first mentioned lymphatic vessels, down through the ages to the time when Eustachius discovered the thoracic duct,[1] and when, in the time of Edward the Confessor, the power to heal scrofula, or the "king's evil," was ascribed to kings and to the seventh son in a family, through the researches of Sappey in the middle of the nineteenth century—through all these times to the present day—diseases and swellings of the lymphatic system have aroused the keenest interest. Our knowledge is more accurate than it was in the times when scrofula was thought to be due to a faulty mixture of body fluids with an acid substance, called "acrimonia scrophulosa" floating in the blood, or when it was thought by the best authorities to be due to retained semen, and curable by marriage;[2] nevertheless, to this day tuberculosis of the lymph glands is a subject to which every additional bit of knowledge may be of some value.

It is well here to review briefly the anatomy of the lymphatic glands of the neck, and in this I am making use of the valuable work of Wood.[3] These glands form two main groups, the superficial and the deep. The superficial may be divided into the suboccipital, the mastoid or retro-auricular, the parotid, the submaxillary, the facial, the submental, and the retropharyngeal glands. The deep or substernomastoid, from fifteen to thirty in number, extend from below the ear downward, under the muscle, usually to about where the omohyoid crosses. There is a subgroup, under the posterior border of the sternocleidomastoid, called the external. These may extend down as far as the supraclavicular glands. In addition, there are a few superficial glands along the external jugular vein, and two or three inconstant ones on the anterior jugular vein. Lastly is the supraclavicular group, usually considered an auxiliary of the deep glandular chain; but Wood believes that in most cases these do not anastomose with the other cervical glands, and they empty independently into the jugular trunk. This is important in that, if it is true, the supraclavicular glands do not form a line of communication between the mouth and the pharynx and the apex of the lung, and do not, therefore, account for the occurrence of apical tuberculosis by direct extension from above. The above mentioned superficial glands, save the supraclavicular, all drain into the deep glands, and the latter into the jugular trunk, which empties into the vein on the right and the thoracic duct on the left. The drainage of the faucial tonsil is important; and, according to Wood,[4] the lymph therefrom passes to one of the uppermost of the deep glands, beneath the anterior border of the sternocleidomastoid just where it is crossed by the posterior belly of the digastric muscle. The pharyngeal tonsil, on the other hand, drains through the retropharyngeal glands directly to the upper of the posterior or external group of the deep cervical chain.

The evidence to support the belief that the tonsil is the main portal of entry for the tubercle bacillus is too voluminous to review in any detail. As a general proposition, it may be stated that about 5 per cent. of all tonsils will show, on microscopic examination, areas of tuberculosis.[5] Weller[6] puts the figure a little lower —2.35 per cent.—and Sir Harold Stiles as high as 9 per cent. Mitchell found tuberculosis of the tonsil in 38 per cent. of 106 adenitis cases without tonsillar symptoms, and Davis[7] notes that he has never seen tuberculous adenitis develop in patients after tonsillectomy had been performed. The pharyngeal tonsil shows tuberculosis even more than the faucial, the figures in 1,671 necropsies being 5 per cent. for the faucial and 10 per cent. for the pharyngeal.[8] Of equal interest is the fact that most cases of advanced phthisis show secondary involvement of the tonsil, Wood's figure being ninety-four cases out of 136, or 69 per cent.

Whether the infection is with the human or bovine bacillus is not of great importance as regards therapy, though it is probably true that in children it is more commonly bovine. Sir Harold Stiles in a large number of cases in children found the bovine type in 90 per cent., and Griffith,[9] in 102 glands examined by inoculation, found that 72.1 per cent. of children under 10 had the bovine type.

The relation between cervical adenitis and pulmonary tuberculosis is interesting. It has been shown that all these cervical lymphatics drain into the jugular trunk, and thence to the right heart and lungs. Should tubercle bacilli break into the circulation in this manner we should expect a miliary tuberculosis, a sequel which, however, is clinically rare. Van Zwaluwenburg and Grabfield, from a large series of roentgen-ray examinations, describe a shadow which they believe to be a thickening of the pleura over the apex, and which is seen in 10 per cent. of all cases; whereas, in those show-

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

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2. Cornet, G.: Scrofulosis, translated from second German edition by J. E. Bullock, New York, William Wood & Co.
3. Wood, G. B.: Operative Surgery of the Nose, Throat, and Ear, St. Louis, 1914.
4. Wood, G. B.: Lymphatic Drainage of the Faucial Tonsils, Am. J. M. Sc. **130**: 216, 1905.
5. Wood, G. B.: The Nose and Throat in Cervical Adenitis, New York State J. Med. **18**: 95 (March) 1918.
6. Weller: The Incidence and Histopathology of Tuberculosis of the Tonsils Based on Eight Thousand Six Hundred Tonsillectomies, Arch. Int. Med. **27**: 631 (June 15) 1921.
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8. Wood, G. B.: The Significance of Tuberculous Deposits in the Tonsils, J. A. M. A. **44**: 1425 (May 6) 1905.
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ing tuberculous deposits in the faucial tonsils it is seen in 93 per cent., and in cases with cervical adenitis it occurs in 59 per cent. They [10] conclude that tubercle bacilli in the tonsil reach the apex of the lung by a direct line of communication through the cervical glands. I do not believe this to be so, and clinical evidence does not, in my opinion, bear it out. Wallgren [11] in a careful examination of 516 cases of pulmonary involvement found that this had been preceded by lumps in the neck in only 17 per cent. of the cases. He was able to follow up 251 cases of tuberculous cervical adenitis and found that the great majority of these patients never developed pulmonary tuberculosis, or if they did, it was mild; furthermore, of twenty-nine patients that had lung involvement with adenitis, twelve were later cured.[11] Williams [12] found that in families with an inherited predisposition to tuberculosis, those members who had suppurative tuberculous adenitis did not contract pulmonary tuberculosis, while those who did contract the latter did not have cervical glands.

Regarding the treatment, I shall, before considering our own cases, review briefly the most favored and most frequently employed methods. The first and most natural therapeutic agent is the sun. Heliotherapy has been used in all types of tuberculosis, especially in Europe, where it has been so extensively worked out by Rollier. Collected statistics of a large number of cases from the French sanatoriums report 74 per cent. of gland tuberculosis cured by sunlight.[13] Mayer [14] recommends it highly, and Hyde and Grasso [15] report, as follows, the results in 200 cases of gland tuberculosis treated by sunlight: 78 per cent., apparent cure; 11 per cent., arrested; 8.5 per cent., improved; 2 per cent., unimproved, and 0.5 per cent., dead.

To be considered at the same time are the various methods of applying artificial sunlight, given under different names, according to differences in the lamps—mercury vapor quartz lamp, carbon arc lamp, etc. The carbon arc lamp, as used by Reyn and Ernst in the Finsen Institut at Copenhagen, and the use of which is reviewed in brief by Sauer,[16] furnishes an easy method of applying intensive light, and is apparently to be preferred to the mercury vapor quartz lamp.

The use of the roentgen ray has so many supporters that its value may be accepted without argument, though the important question is to decide when to use it and when not, and whether it should always be employed. Opinions as to the extent of its value vary a little, some of its advocates asserting that it helps only in some cases while others believe that it is the one therapeutic agent *par excellence*. Pfahler [17] believes that is will cure all early cases, and should be used after surgical operation, Berry [18] and Trostler [19] believe that it is the best form of treatment, and Boggs [20] believes that roentgen ray and radium will cure more than 90 per cent. of all cases. He believes also that radical operation is primarily contraindicated, and in this I gladly concur.

Tuberculin, which must be considered briefly, is a solution of certain extracts of the tubercle bacillus, and there are many different kinds, depending on the way in which the extract is made. All these different kinds result from attempts of various investigators to procure the substance which will best stimulate the body mechanism to produce a specific antibody. By its administration we hope to set up the formation of a defense, which will result in focal stimulation, and the overcoming of the infectious process.[21] There are many opponents to this therapy; but if there is any value in it at all, we should not discard it. Of recent authors, Schmidt,[22] Deycke,[23] Crowley,[24] Macrae,[25] Elliott and Sheard,[26] and Abbott [27] believe that tuberculin has an important place in therapy, and the last named says, "Above all other remedies in true tuberculous infections, aside from those in which surgical interference is definitely indicated, I give first place to tuberculin." Other observers report no success with tuberculin, and it is my belief, from reading the literature, that in bone and joint tuberculosis, at least, it has not in most cases proved of value. There is no doubt that tuberculin has been the means of saving many eyes with tuberculous infection,[28] and I have seen several such good results in our own clinic. Opponents of tuberculin are many, but its supporters are likewise too numerous to warrant one's saying that there is never any justification for its use. If its action is so beneficial in certain eye lesions, in which it is impossible to use light, radiation and surgery, so much the more should we be willing to consider its value in other conditions. In our clinic we have also seen many distressing cases of genito-urinary tuberculosis held in check by tuberculin.

As we run through the literature we find the advocates of radical surgery decreasing in number, though no one will say that it has not its place. Edmunds,[1] Dowd,[29] and Ladd [30] are among the foremost believers in radical operation, the last two named referring especially to children. Dowd reports 726 patients operated on by himself or his associates with 91 per cent. of cures, and Ladd, reporting 159 cases, advises early radical operation, with removal of the primary focus. Abbott [27] admits that surgery is clearly indicated in some cases, but contraindicated if there are palpable glands beyond the reach of the operator, if there is evidence of mediastinal glands, and if there are axillary glands. These conditions prevail more often than not, in our experience, and fortunate, indeed, is he who gets almost all of his patients at a stage when they are limited to a group which can be easily and quickly dissected out! The difficulties and worries of extensive

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12. Williams: Glandular and Pulmonary Tuberculosis, Brit. M. J. **1**: 158 (Jan. 29) 1921; abst. Am. Rev. Tuberc., June, 1921.
13. Dinnan, J. B.: Heliotherapy in Tuberculosis, M. Rec. **97**: 62 (Jan. 10) 1920.
14. Mayer: Sunlight and Artificial Light Therapy, Am. Rev. Tuberc. **5**: 75 (April) 1921.
15. Hyde, C. L., and Grasso, H.: Heliotherapy in Surgical Tuberculosis, Am. Rev. Tuberc. **5**: 159 (April) 1921.
16. Sauer: The Treatment of Surgical Tuberculosis with the Carbon Arc Lamp, Am. Surg. **75**: 400 (April) 1922.
17. Pfahler: Roentgenotherapy in Cervical Adenitis, New York State J. Med. **18**: 99 (March) 1918.
18. Berry: X-Ray Treatment of Tuberculous Glands, Brit. J. Tuberc. **15**: 13 (Jan.) 1921.
19. Trostler: Essentials in the Early Diagnosis of Tuberculosis, Am. J. Clin. Med. **27**: 804 (Dec.) 1920.
20. Boggs: The Treatment of Tuberculous Cervical Adenitis by Roentgen Rays and Radium, Am. J. M. Sc. **162**: 90 (July) 1921.
21. Pottenger: Clinical Tuberculosis, St. Louis, C. V. Mosby Company, **2**: 329, et seq., 1917.
22. Schmidt: Beitr. z. Klin. d. Tuberk. **47**: 106 (March 15) 1921.
23. Deycke: Praktisches Lehrbuch der Tuberkulose, Berlin, 1920, p. 231, et seq.
24. Crowley: Tuberculin, Its Uses and Abuses, Kentucky M. J. **18**: 30 (Sept.) 1920.
25. Macrae: Tuberculin Treatment of Tuberculosis, South American M. Rec. **18**: 217 (April 10) 1920.
26. Elliott and Sheard: Tuberculin in Treatment, with Especial Reference to Nonpulmonary Tuberculosis, Tr. Canad. A. for Prev. of Tuberc. **18**: 64.
27. Abbott: The Treatment of Tuberculous Cervical Adenitis, Am. Rev. Tuberc. **3**: 175, 1919-1920.
28. Verheyben: The Use of Tuberculin in Eye Diseases, Brit. J. Ophth. **2**: 223 (April) 1918.
29. Dowd: Indications for the Removal of Enlarged Cervical Lymph Nodes, New York State J. Med. **18**: 109 (March) 1918.
30. Ladd, W. E.: Tubercular Cervical Adenitis in Children, Surg., Gynec. & Obst. **24**: 467 (April) 1917.

radical treatment are well illustrated in a report of Lahey and Chute,[31] reviewing forty-eight cases of the above mentioned procedure. Only 43.4 per cent. did they class as excellent results; in 26.08 per cent. there was paralysis of the spinal accessory, in five cases paralysis of the depressor anguli oris, and in eight cases recurrent glands. These patients were operated on by several excellent surgeons, and represent, to our minds, a fair estimate of the results of surgical treatment of unselected difficult cases as they come into a large general hospital. The advocates of early operation will say to this that, had they been operated on early, the results would have been better; but in this paper we are concerned with the unselected cases of all types, and more often than not these patients do not come early, and if they do they may not consent to operation, or there may be other contraindications.

TREATMENT AT NONPULMONARY TUBERCULOSIS CLINIC

About twelve years ago, there was started at the Massachusetts General Hospital, through the interest and foresight of Dr. John B. Hawes, a nonpulmonary tuberculosis clinic, the one form of the disease which it was most desired to observe and treat being cervical adenitis, and in which the aim was to treat each patient as a human being, and not as a case. It was a class rather than a clinic. There have been about 600 cervical gland cases, 175 genito-urinary, thirty-five cases of tuberculous eyes, and the rest miscellaneous forms of surgical tuberculosis. The procedure is as follows: When a patient with cervical adenitis comes to the outpatient department, all routine examinations are made, including those of the lungs, with the roentgen ray if deemed advisable, the throat, scalp, ears and the blood, and in certain cases a biopsy is performed, though we do not believe in the routine removal of specimens for diagnosis. The patient then reports to our clinic, where he or she is seen by the internist and surgeon in consultation, and the line of treatment for that particular individual is discussed, and then the patient is referred to the social service department for investigation of home conditions. In the majority of cases, the tonsils and adenoids are removed. Then, in certain instances, consultation is had with the dermatologist and roentgenologist to consider light or radiotherapy. In practically no case, save the acute, red, tender abscess, is any surgical procedure advised at once, though there are exceptions to this rule, notably the chronic solitary cold abscesses, when a gland or group of glands has completely liquefied, and in which we have found that simple drainage is the best procedure, and is usually followed by complete healing in a short while. Attempts to dissect out the wall of such an abscess are difficult and not necessary. Occasionally there comes a patient with a hard, discrete, easily removable group of glands, in which operation seems, at the outset, advisable; but this is an unusual condition. We have, almost as a routine, started them on tuberculin, which, through the kindness of Dr. E. R. Baldwin, we have procured from the Saranac Lake laboratory for the study of tuberculosis. After trying this for a few weeks, observing the patient carefully, we then decide whether other therapy should be attempted. However, we still put off, for as long as possible, radical surgical interference.

To try to form an opinion on the results of our therapy, and to get a broad view of treatment, we took all the completed cases, including those patients that had stopped coming of their own accord, and tried to trace them. The number of patients totaled 498, of whom the largest number were between 20 and 30 years of age, the next group being from 10 to 20, and the third those under 10; but owing to the fact that they were mostly nomads by inheritance and in habits, we could get in touch with only 150, in regard to whom certain facts are of interest. Fifteen of them had pulmonary infection, of whom only four died after leaving us, though three died of unknown cause. Only one developed phthisis after leaving the clinic. Of the total number thirty-four had affected glands on both sides, the great majority being limited about equally to the right or left. Nine patients had submaxillary tuberculous adenitis, a rather uncommon occurrence. More than half had demonstrably infected tonsils and adenoids, which were removed, and with our present feeling many more, if not all, would have been operated on.

Half of the patients presented themselves with an acute abscess, requiring incision—this was a secondary infection superimposed on a primary tuberculous condition. This type does not well yield itself to radical operation, and here we believe tuberculin to be of benefit. With long-standing sinuses the mercury vapor quartz lamp has proved a most valuable adjunct to the other therapy. One of our patients with four sinuses on the right side of the neck, without any large glands, and who resisted tuberculin and roentgen ray, was cured after a very few weekly treatments with the Alpine lamp, and a stubborn condition of many months' duration disappeared in an astonishing manner.

Our experience with the roentgen ray is too limited to enable me to speak authoritatively on it, but our success has not been striking, in a fair number of cases. They were not early ones, but severe cases of long duration, and roentgenotherapy made no marked change for the better in the average patient. One striking case, a young woman with a very extensive mass of the whole substernocleidomastoid chain on the right, a tremendous unsightly tumor with subacute inflammation and two sinuses at the upper end, failed to improve in the least under hygiene, roentgen ray and tuberculin, and was sent into the ward for radical operation. The inflamed, adherent, discharging mass under the ear was dissected out—such a long tedious process that the operation was not completed, and she was sent out to return for a second operation. While waiting for the proper time we continued the tuberculin, and to our astonishment the rest of the glands began to subside so rapidly that from week to week we could observe their shrinkage, and now one can perceive merely a faint scar—this case is one of the most extensive, if not the most so, which we ever had.

Of the 150 patients whom we traced, fifteen still are having trouble with persistent glands—all of these were persons that did not follow up the treatment, we neither gave them tuberculin enough to satisfy ourselves, nor did we have a chance to carry out other effective measures. As noted above, seven died and one only developed phthisis after coming to us. Of the total 150 cases, 127 are classed as cured with excellent results, fifteen as failures due to ceasing treatment, eight as failures to respond to conscientiously applied therapy. In 109 of these cured patients the chief therapeutic

31. Lahey and Chute: End-Results of the Surgical Treatment of Forty-Eight Cases of Tuberculous Cervical Adenitis, Boston M. & S. J. 186: 280 (March 2) 1922.

agent besides hygiene, and in some incision of the secondary abscesses, was tuberculin; in twenty-nine of these we believe it to have been the chief element in the cure, and in eighty others we believe it to have been a very great help. Four cases of recurrence after radical operation yielded promptly to tuberculin, and another case which recurred after ceasing tuberculin subsided at once on renewal of the specific therapy. Three distressing tuberculous eye infections were cured with tuberculin. On the other hand there have been a certain number of patients on whom tuberculin exercised no beneficial effect whatever, and these were then treated by operation, by light or by roentgen ray, the desired result thus being achieved. The tuberculin employed by us is the tuberculin B. F., or bouillon filtrate, the initial dose being one ten-thousandth of a milligram. It is given once a week and the dose increased gradually, being reduced slightly in case of too much reaction. Some of the patients would receive as much as 100 milligrams, or more, a week. Each patient is carefully observed at each visit to the clinic.

When other methods have failed or when there seemed some special indication at the outset, we have resorted to radical operation. Our prejudice against surgery as a primary procedure is based on the following:

First, a majority of the patients can be cured without it, leaving little or no scar.

Secondly, the cases as they come to us, unselected, involve as a rule too many glands to promise any cure short of a very extensive dissection, with its accompanying dangers of nerve injury, postanesthetic complications, and unsightly scar.

The chief argument for operation, as against other methods, is that it is prompt, and if successful, does away with the necessity of weeks or months of treatment. In reply to this it is our contention that the average case as we see it is better in the long run without extensive neck dissection, that the dangers of nonoperative treatment are practically nil, and that we can send out patients happier, in the end just as well, and with little or no cicatricial deformity. Operation has its place, but that is not the first place in the average case. Our clinic is, as I said above, a sort of class—we get to know the patients and they us—we watch over their hygiene and mode of living, as well as treat them specifically.

To summarize briefly, a case reporting to us is studied thoroughly and when a diagnosis of tuberculous adenitis is made, we do approximately as indicated below.

1. Hygiene and mode of living are investigated, and corrected as indicated.

2. The tonsils and adenoids are removed, unless contraindicated.

3. Acute abscesses are drained.

4. Discrete cold abscesses without acute superimposed infection are opened through a small incision, and drained for a few days with a small rubber tube.

5. Patients with chronic discharging sinuses are treated with tuberculin plus the mercury vapor quartz lamp.

6. Discrete localized glands are at the outset either removed or treated with tuberculin.

7. Extensive disseminated glands, and those showing deep involvement, are treated with tuberculin. If this fails we then try roentgen ray, and lastly operation.

CONCLUSIONS

There is no certain therapeutic agent, no absolute specific, and no set rule for treating tuberculous cervical adenitis. To lay down a definite scheme, and treat every case thereby is, in my opinion, not productive of the best results. Each patient must be carefully studied and considered as an individual, and then, by the judicious application of our five chief methods, hygiene, light, radiation, surgery and tuberculin, either singly or in combination (for each has its place), we will find that we approach, as nearly as possible in this stubborn and difficult condition, our therapeutic goal.

402 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. HARRY G. SLOAN, Cleveland: Dr. Miller has expressed exactly the general feeling in regard to the treatment of tuberculous glands of the neck. In the last ten years, this has shown remarkable change. The change in point of view has originated principally from the attitude of the roentgenologists. Tuberculosis of the glands of the neck must be managed according to the patient's hygienic surroundings. The treatment must be adapted to the resources of the patient. Under ideal conditions, it is most important first to eradicate the focus of local infection. In all cases of cervical adenitis, we advise routine removal of tonsils and adenoids. This is done under local anesthesia when feasible. In children, general anesthesia is necessary. The tuberculous person stands general anesthesia poorly, so we avoid it when possible. When the glands are deeply situated, we depend on the roentgen ray. We do not advise operation on the glands unless one of them breaks down. We then make a small incision parallel to the normal wrinkles of the neck in order to evacuate the contents. The general immunity of the patient is increased 20 per cent. by rest in bed. A man's immunity to any type of infection is probably 20 per cent. better in bed than when he is up and around. And the patient must be out in the open. Recent studies in metabolism during open air treatment showed that the general metabolism is increased from 50 to 60 and even higher. Overfeeding is important. I like to give cod liver oil. In the very resistant cases, when immunity is not readily established, we have advised one or two accessory measures, such as repeated transfusion of whole blood. The last hygienic measure we dispense is open air. Practically everybody can sleep outdoors, or can arrange his affairs so as to have an outdoor job.

DR. FRANK H. LAHEY, Boston: Every one who has been through the stage of radical surgery for tuberculous glands of the neck is very glad to see the treatment return to conservative measures. The statistics which Dr. Miller gave in his paper regarding spinal accessory paralysis are based on a series of twelve cases collected by my associate and me; and I wish to emphasize particularly the seriousness of this lesion to which, I believe, due weight has not been given. There is a teaching that if the spinal accessory nerve is cut its function will be taken up by the cervical plexus. This is based entirely on the assumption that junction of the third and fourth cervical nerves with the spinal accessory, which takes place beneath the border of the trapezius, occurs. It is called the subtrapezius plexus. As a matter of fact, this junction does not always occur, and absolute dependence cannot be placed on the foregoing statement. The trapezius muscle is an an all important unit of the shoulder girdle muscles. It is practically the only muscle which anchors the scapula and the muscles arising on it to the spine. It accomplishes the last 90 degrees of abduction, and, if its function is lost, produces serious crippling of shoulder joint motion. In this series of twelve cases of spinal accessory paralysis operations were performed by six surgeons, operations of all types, from complete block dissections to simple incision of tuberculous abscesses. If you have an opportunity to review your cases in which dissection for tuberculous glands of the neck were made, I believe you will be surprised at the num-

ber of cases of spinal accessory paralysis, and the definite crippling and loss of function resulting from it. This is, I believe, a serious argument against extensive dissections, except in urgent cases of failure to obtain benefit by the last radical measures. It has also been our experience that, even when the spinal accessory nerve has been carefully preserved throughout its course, paralysis may occur later. Hence, it must be borne in mind that this lesion is always possible in any case in which extensive dissections are undertaken.

DR. RICHARD H. MILLER, Boston: Quite a while ago I was given the assignment of tuberculous gland cases at our hospital with the idea that I would operate on all patients; but in examining them, I came to the conclusion that operation was by no means the first consideration. I found that ordinarily the adenoids and tonsils were not removed unless the nose and throat man could see something definite. I believe now that this is wrong, and that in every case, irrespective of what the tonsils and adenoids look like, they should be removed. One thing that has helped us in handling these people who live in crowded districts is that we have a social worker who keeps in touch with them. The question of using tuberculin is one about which there has been a great deal of argument, but surely it has helped us a great deal in many cases. If we attempt to treat all cases in this specific way, we shall be disappointed; but it has a very definite place, and we have used it now for nearly twelve years. We try it, and if we do not get results, we make a change; but there are some results that are perfectly astonishing. For example, a man came in with a tremendous tumor of the neck a few years ago. We treated it with tuberculin and it got no better, until one day the tuberculin created a tremendous reaction. The arm swelled to three or four times its normal size and the man was very sick, owing to the unexpected action of the tuberculin. However, the glands began to diminish in size in the most surprising manner. He was given a little more tuberculin, and within six months he was accepted for service in the Army. No note was made at that time of the glands, so they were at least not visible or palpable on casual examination. We must remember that it is a difficult problem, one which requires patience. If we treat our patients with the best means at our command and encourage them and supervise their home conditions, in the end we shall have much better results than we used to achieve with the old radical operation.

THE EFFECT OF QUINIDIN ON STRIPED MUSCLE*

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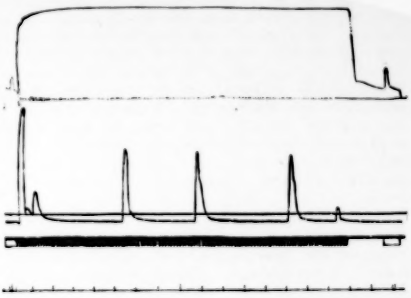
The puzzling effect of quinidin on auricular fibrillation renders it advisable to study its actions on the fundamental properties of muscle. This can be most conveniently and accurately approached in skeletal muscle. Experiments with frog's gastrocnemius or sartorius, immersed in dilute quinidin solutions, show the following variations from the corresponding normal muscle (immersed in unpoisoned Locke's solution):

1. The height of contraction is diminished.
2. With tetanizing currents, the peak of contraction is not so well sustained.
3. The muscle ceases to respond to any stimulus much sooner than the corresponding unpoisoned muscle.
4. Load fatigues it more easily.
5. About ten stimulations a second cause a completely fused tetanic contraction in normal muscle; but with the quinidin muscle, the fusion is usually incomplete, no matter how frequent the stimulation, and becomes less and less complete the more the muscle is fatigued or loaded.
6. The quinidin muscle therefore responds intermittently to a tetanizing current.

* From the Pharmacological Laboratory of the Western Reserve Medical School.

The contrast is shown in the accompanying illustration, in which the upper tracing represents the complete tetanus of the normal muscle; the second tracing the contractions of the quinidin muscle; the third tracing represents the stimuli, and the lowest tracing, the time, in seconds. The muscles were arranged so that the same induced current passed directly through the two muscles.

Whereas the normal (upper) muscle shows one contraction throughout the stimulation, the quinidin muscle contracts at an almost regular rate of about fifteen a minute, although the rate of stimulation was about eight a second.



Upper tracing, complete tetanus of normal muscle; second tracing, contractions of quinidin muscle; third tracing, stimuli; lowest tracing, time, in seconds.

These effects can be conceived as depression of the muscle; slow recovery of excitability, and consequent failure to respond to rapid stimulation, until the muscle has rested; therefore, intermittent response to frequent stimulations, the rhythm of the contractions depending not on the frequency of the stimulation, but on the rate of recovery of the muscle.

In consequence of the rest, the contractions are strengthened.

This seems to furnish a plausible explanation of the effect of quinidin on auricular fibrillation.

Further work will be needed definitely to establish whether this explanation covers the clinical phenomena, or whether other factors enter into them.

Quinidin probably depresses the cardiac muscle, so that it cannot respond to all the numerous stimuli that give rise to fibrillation; but only to a restricted number, thus giving opportunity for periods of rest.

The Colonial Exhibition at Marseilles.—The *Presse médicale* calls attention to the medical exhibits in the Colonial Exposition which is now open at Marseilles. As long ago as 1897 Colonel Lyautey wrote from Madagascar to the French government: "Give me four physicians and I can send back to you four regiments." The medical men have been the pioneers in the French colonies, and the extent of their work is now displayed in the exhibits of the public health service in the various colonies, the hospitals in charge of scientifically trained natives, the medical schools, the utilization of mineral waters, seat bathing, etc., and sanitation of towns. "As usual, however," our exchange remarks, "the prevention of disease in agriculture and stock raising makes by far the most imposing showing. Is this due to the indifference of the public powers to human health in comparison to the financial profits? It does not seem so. Is it due to the modesty and the timidity of physicians? Possibly."

OBSERVATIONS ON THE IRIS IN HEALTH AND DISEASE AS SEEN WITH THE SLIT LAMP*

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This communication is based on the result of more than 250 examinations, including iridodialysis, iritis, uveitis, kerato-iritis, iridocyclitis, interstitial keratitis, glaucoma of all forms and cataract of many types. The usual routine has been followed with the slit lamp, using binocular 75 and ocular 33. Special studies have been made at greater magnification.

To present some new facts and emphasize the importance of this examination, it has seemed best to review part of our present knowledge regarding iris anatomy, and then to discuss embryologic remnants and pathologic changes.

An examination of the iris with oblique illumination will materially aid in understanding the usual contour and some of the common color arrangement. The microscopic section shows the zone about the pupil, which is usually a dense brown. There is a distinct bulge back of this margin which we call the spongy portion of the iris, and the most prominent part of this sponge the shelf. I suggest these names only because they are short and more easily remembered than the region of the greater or lesser vascular circle and because, furthermore, the iris under examination gives the impression in many cases of a sponge. Where this spongy portion of the iris overlaps there are many variations in the normal eye. Definite bands may stand out prominently with depressions between, as caves, hollows or lacunae, or the whole iris may seem like a

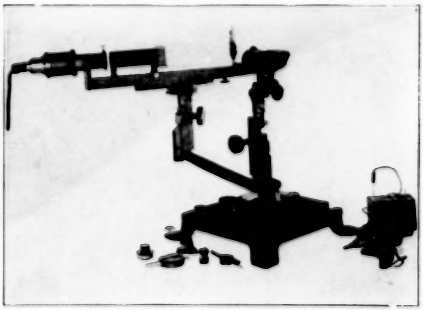

Fig. 1.—Slit lamp: movable base with lamp and microscope attached so that the two may be moved together, an arrangement that is of the greatest practical value.

fresh water-soaked sponge. The individual fibers are well defined in the light colored iris, whereas in the dark brown iris the folds are more often shallower and the hollows less marked.

The peripheral part of the iris is frequently arranged in concentric rings and, although they may be absent, we have been able to outline as many as six. The radiating folds which are grossly evident vary much in depth and number. So far, we have been unable to attach any pathologic significance to them.

The blood vessels of the iris are often visible, and in cases of atrophy it is frequently possible to follow them through most of their course. They may be markedly increased in number and size, especially in chronic simple glaucoma and in sympathetic ophthalmia. The iris nerves are at times easily outlined.

The pigment of the iris is of two types, and presents so many variations that, unless a specific plan is followed, there must surely creep into the literature and into the understanding of cases very wrong conclusions. The pigment surrounding the pupillary margin is

Fig. 2.—Microscopic section of iris: (*a*) retinal pigment; (*b*) sponge; (*c*) shelf; (*d*) concentric folds.

retinal, and, as far as I have been able to see, always appears as a dark brown mass. This varies in intensity as well as in extent, and is often seen as a layer, notably in the iris atrophy of age or the congenital absence, albinism. The marginal band may be markedly increased so that in parts it extends over the iris stroma. It may be so great that it becomes adherent to the overlying iris; in one case about one fourth of the circumference of the pupil was occupied by a densely pigmented mass, and in another case it was adherent to the iris with four distinct grayish bands of adhesion. The same pigment may become pedunculated, or it may even be free on the iris. In contrast to the increase, we frequently see by transillumination irregular absorption at the pupillary margin; at other times there is almost complete blanching.

The other type of pigmentation, iritic, is that which makes the distinctive color of the eye and is necessarily of endless variety. This superficial pigment ranges in color from light yellow to an intense brown, and may be so irregular in distribution that care must be taken to determine whether a given spot is of iritic or retinal origin.

Pigment on or in the iris we consider under spots, dots, dashes, granules, specks, balls, thin filamentous veils and densely pigmented layers. It may be on the posterior surface of the cornea, in the aqueous or on the anterior capsule of the lens. The interpretation of pigmentation will lead to prolonged study. So far, we believe that the superficial spots ranging from light yellow to dense brown are normal; that pigment deposits on the capsule of the lens may be embryologic, although if the same pigment, particularly indefinite masses, are about the iris margin, they signify present or past inflammation of the iris; and, if the dense brown masses are vascularized, it is evidence of a severe chronic uveitis. If there be irregular granules or specks and dashes on the posterior layer of the cornea and in the aqueous, there is a definite pathologic process, most often glaucoma. The thin and dense veils are always indicative of pigment migration, which

* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

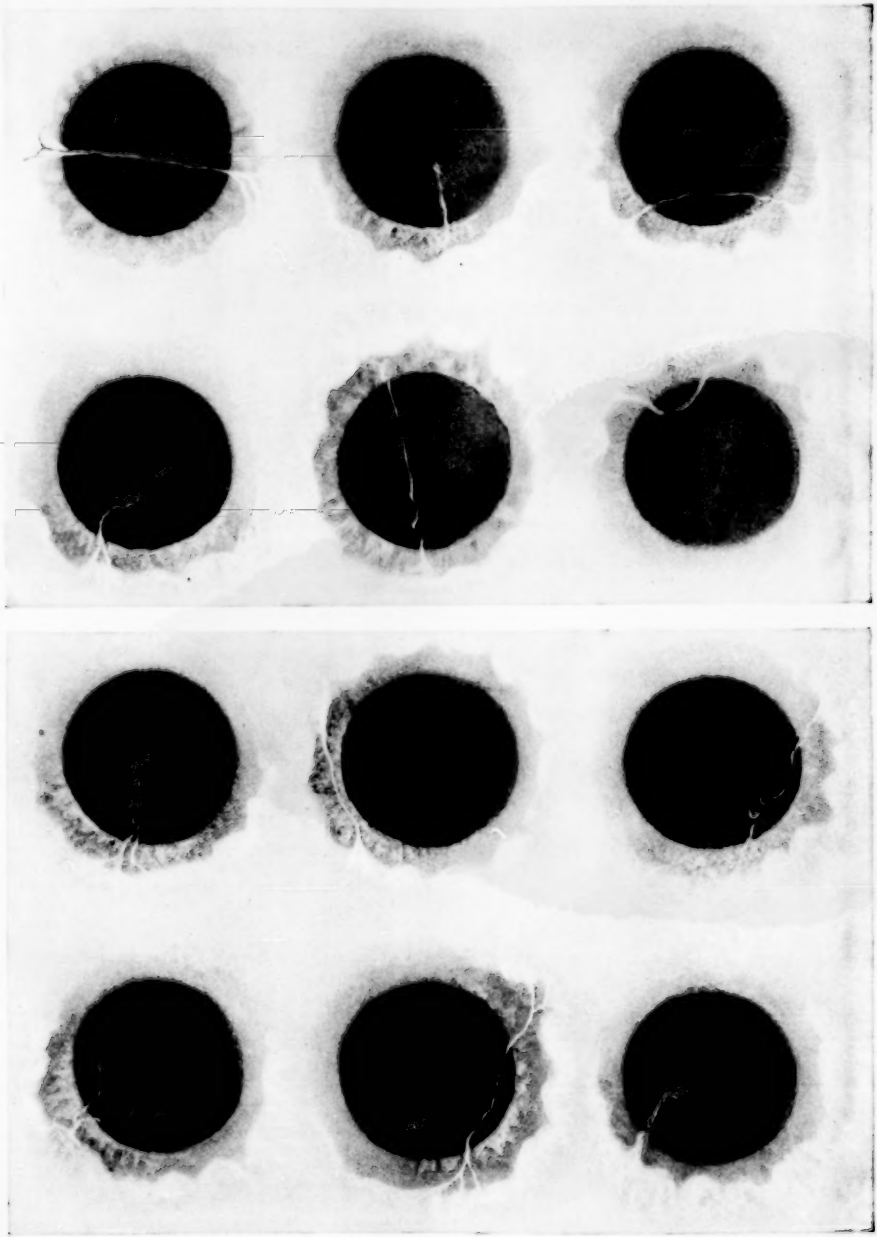

Fig. 3.—A few of the many embryologic changes: filaments from shelf of iris, pigment deposits on anterior lens capsule and retinal pigment mass adherent to iris stroma.

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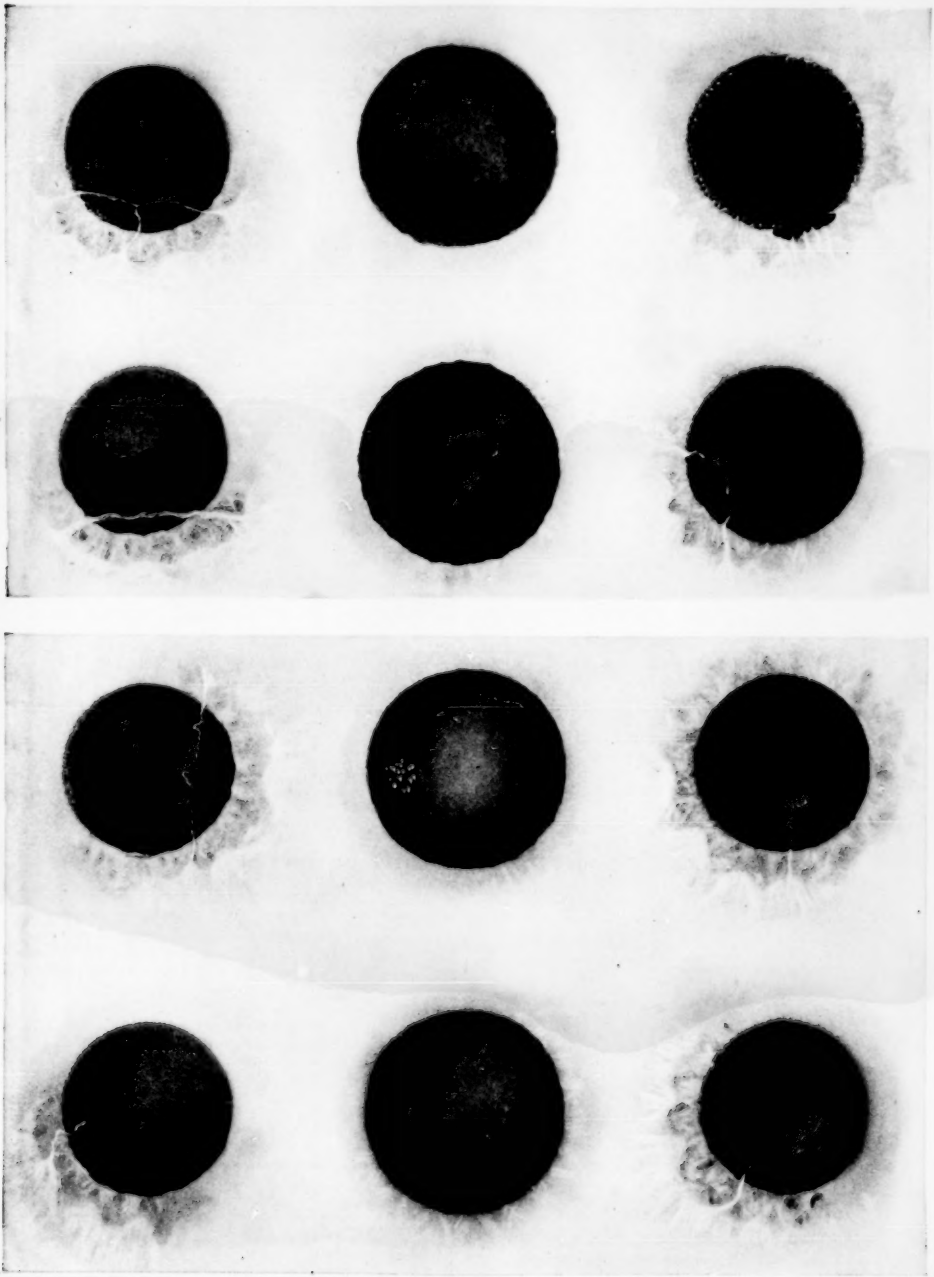

Fig. 4.—A few of the many embryologic changes: filaments from shelf of iris, pigment deposits on anterior lens capsule, and retinal pigment mass adherent to iriss troma.

is probably never present except in disease. Balls, small definite, round, projecting masses which may cover the entire surface of the iris or even lie on the anterior lens capsule, have been seen in the dark brown iris only when the patient had glaucoma. The interpretation of pigment dots, particularly those near the pupillary margin, is open to discussion. They have been seen in seemingly normal eyes, in those with atrophic iris, and in some with cortical cataracts. They are usually superficial, tend to round shape, and most often are of the retinal pigment type. Dense granules, sometimes in the form of a thick veil, have with one exception never been seen except in glaucoma.

EMBRYOLOGIC REMNANTS

The origin of tissue must be considered, if anomalies are to be properly recognized. As the eye develops, the uveal tract forms a mass which becomes the posterior lens capsule. This projects forward and makes a sheath or a layer of vascular tissue. Ordinarily, this layer is absorbed; but at times it persists as a macroscopic body in the pupillary area. At other times, the

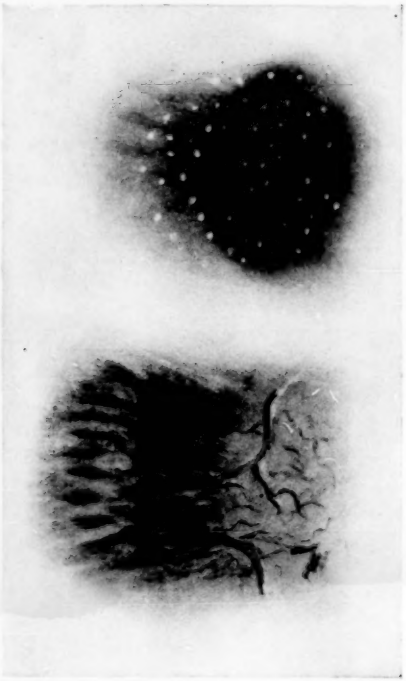

Fig. 5.—Sympathetic ophthalmia: Above, Descemet's deposits. Below, one of many new blood vessels in iris and on capsule. The iris shelf is adherent to the capsule, not the pupillary margin. This is seen only in chronic uveitis.

remnant is so small that only careful study by focal illumination and the ophthalmoscope discloses it. There are, however, many other changes which have escaped clinical detection. In my first 250 examinations there were forty-three anomalies, a few of which may be studied by examination of the chart.

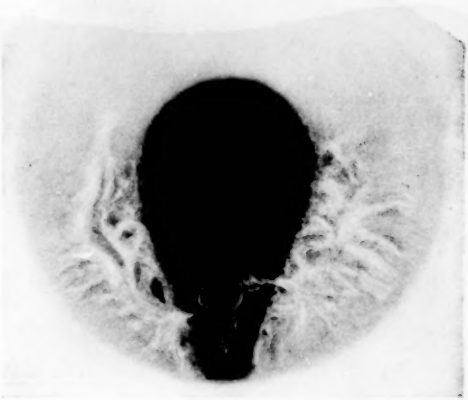

Fig. 6.—Congenital coloboma with pupillary margin tags. The retinal pigment is almost complete, only the most inferior margin being without it. Congenital cataract.

EMBRYOLOGIC CHANGES

There are two great classes of embryologic changes, those of iris structure and those of pigment on the anterior capsule of the lens.

Iris Structure.—First, folds that spring from the iris shelf and have the character of the definite iris stroma. These bands may be single, they may project into the pupillary area, or, as we have seen in two cases, extend to the capsule of the lens and remain adherent to it, or the fiber may simply extend forward and almost touch the cornea. Second, fine translucent gray filaments which may remain attached to the iris at one end and lie free in the aqueous at the other or extend from the iris to the anterior capsule of the lens or from iris to iris or go across the pupil from iris to iris. By examination, preferably dark field, many of these forms are easily seen, and it will be found that they all come from the iris shelf. A part of the iris may be absent, as in coloboma, or all of it, as in aniridia.

Pigment.—Congenital deposits of pigment are of three types: stars, masses and fine lines. The stars may be single or in groups. The indefinite dense brown pigment may be in rounded, elevated areas single or multiple. Fine lines may lie on the capsule and extend beneath the iris. In this study stars and lines have been

seen only in otherwise normal eyes. On the other hand, splotches of pigment similar to these congenital ones have been seen in iritis and glaucoma.

PATHOLOGIC CHANGES

Iritis.—Acute: In acute iritis, the first clinical change is contraction of the pupil or sluggish light reaction, which is followed by injection and then exudation. Most of the synechiae are the result of exudate causing the adhesion of the retinal pigment layer to the anterior lens capsule. At first there are minute aggregations of cells which, if seen early, can be drawn apart under atropin and may leave no trace of the disease. More often, however, the adhesions are well formed, showing as a gray exudate surrounded by brown pigment. Atropin may succeed in stretching these, but there always remains some retinal pigment on the capsule, and not infrequently the iris is firmly bound down. Such posterior synechiae vary in size, number and shape. The gray exudate that partially or completely fills the pupillary area is well studied, and conclusions may easily be drawn. When a ring of the exudate completely closes the anterior chamber, the iris bulges forward, often causing glaucoma. Not infrequently the iris seems bound down throughout its entire margin, and yet glaucoma does not supervene. Examination in the latter case will show that there is at least one area in which the iris is free from the capsule.

Chronic: In chronic iritis there are two noteworthy observations: (1) the adhesions of which I have just spoken, and (2) the proliferation of the retinal pigment. This pigment may cover the entire anterior capsule, it may be present as a single small mass, or there may be any degree of pigmentation between these two.

Quiet: The type that escapes diagnosis and is, therefore, called "quiet iritis" is easily diagnosed with the lamp. The pigment proliferation and gray capsular exudate in an eye without pain and only slight redness make the diagnosis easy. In syphilitic iritis we may have the so-called gumma, which appears as an elevated

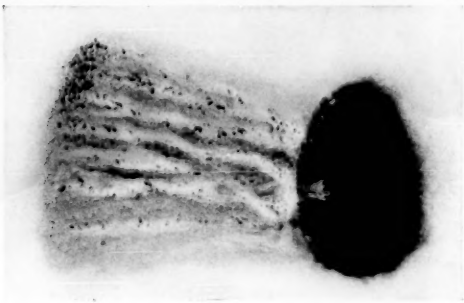

Fig. 7.—Chocolate colored deposits in and on the iris, with a capsular exudate and pigment proliferation. Chronic glaucoma.

brownish area with definite blood vessels running in and through it. Tuberculous iritis offers a field for interesting study and exact deductions.

Recurring: Recurring iritis has caused endless annoyance to patient and physician. A thorough study will show that in many of these cases there is complete occlusion, and that the flushing of the eye is often indicative of a glaucomatous change. This explains why an iridectomy has often cured an iritis of years' standing.

INTERSTITIAL KERATITIS

In interstitial keratitis, the iris usually presents the inflammatory picture with opacity and vascularization of all layers of the cornea, and areas of deposit on Descemet's membrane. As there has been some doubt as to the circulation of blood in interstitial keratitis,

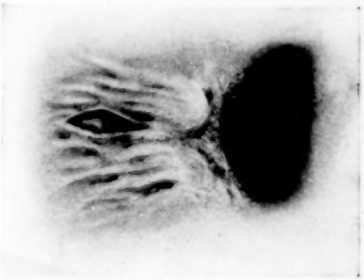

Fig. 8.—Penetrating iris injury caused by a flying piece of steel. Retinal pigment layer in the wound; no pupillary marginal pigment change.

that doubt is permanently removed after examination with the slit lamp; for, in all fresh cases, the definite blood stream is demonstrable, and only in permanent, small, central opacities is blood absent. Descemet's deposits vary much in size and number, frequently covering almost the entire membrane. Often grouped to one side of a deposit are rounded dots suggesting a granular nucleus in appearance. So far, I have not been able to make a definite diagnostic deduction regarding these deposits.

A case of proved tuberculous keratitis with temporal limbus infiltration of many months' duration showed a clear iris, with no evidence of infiltration or increased iris vascularization.

UVEITIS

A patient with secondary uveitis, of unproved syphilitic origin, of years' duration, presenting many vascular corneal opacities, had a mature cortical cataract three years ago. The lens was removed, pupillary occlusion became marked and the patient came to me for a second operation. The slit lamp proved that she had innumerable gray patches of deposit on Descemet's membrane, and that many new blood vessels were present in the iris. The other eye showed the same deposits and corneal vessels. These Descemet's deposits were so minute that, unless a most exhausting loupe examination had been made, they surely would have escaped notice. It is hardly necessary to say that I refused to operate.

SYMPATHETIC OPHTHALMIA

The appearance of the iris in sympathetic ophthalmia is suggestive. In one case, Descemet's membrane was studded with deposits, the iris was thickened and lost its markings, and there was adhesion between the shelf and capsule, with a frayed margin and many large blood vessels. This iris picture was almost the same

in an eye that had been severely injured by being struck with a large foreign body, producing dislocation of the lens up and out with iris inversion. The iris was brownish, showing fine and large blood vessels with triangular attachments of the iris shelf to the capsule.

Fig. 9.—Traumatic iridodialysis: intact pupil margin; no pigmentation; zonule and lens.

INJURY

Figure 9 shows the separation of iris, the result of a blow. It will be noted that the peripheral margin of iris is smooth, and that there has been no increased pigmentation.

In a clean-cut perforating wound there was a distinct layer of retinal pigment where the overlying iris had been destroyed with no other evidence of iris involvement. A clean prolapse of iris which became incarcerated in the cornea showed a stretching and thinning of all iris structure without pigment massing.

GLAUCOMA

The observations made on glaucoma are classified as acute, chronic and simple.

Acute.—The opportunity of studying the acute cases with the slit lamp has not been often. As may be readily understood, the excited patient stands such an examination poorly, the eye being so sensitive to light.

In a recent case the cornea was steamy, showing innumerable superficial epithelial elevations and true edema; the pupil was widely dilated with injection of the iris but no change in the pigmentation.

Chronic.—The chronic inflammatory glaucomas are more often examined, and usually show migration of pigment. Some, however, do not, so that it does not seem that pigment migration is either a symptom of the disease or of prognostic import, although it may prove to be of the greatest diagnostic value.

Simple.—Simple glaucoma has been observed many times, some showing absorption of almost all of the iris pigment, the iris giving the appearance of being moth-eaten because of its uneven margin and transmitting the light through the atrophic tissue to the retinal layer.

On careful focusing it can be found that a blue iris is made up of a very few strands near the pupillary margin, and the tissue making up the shelf is so thin that the pigment layer is detailed. In other simple glaucomas, the iris margin has remained unchanged, and in still others the pupillary pigment layer seems to project over the iris, giving an appearance of prolapse. Not infrequently the iris blood vessels are very numerous, although gross examination may not demonstrate it. This is one reason why expulsive hemorrhage follows operation, such as an iridectomy.

Another reason for failure to relieve tension is the immediate adhesion of the iris to the lens capsule. I strongly urge the use of atropin at and following operation.

CATARACT

Following cataract extraction, not uncommonly the whole surface of the iris seems obscured in a thin veil in which there are innumerable pigment spots not only about the pupillary margin but as far back as examination can be made. In some other cases the iris about the coloboma is atrophic, showing as a gray line with irregular margin and, by dark illumination, loss of iris

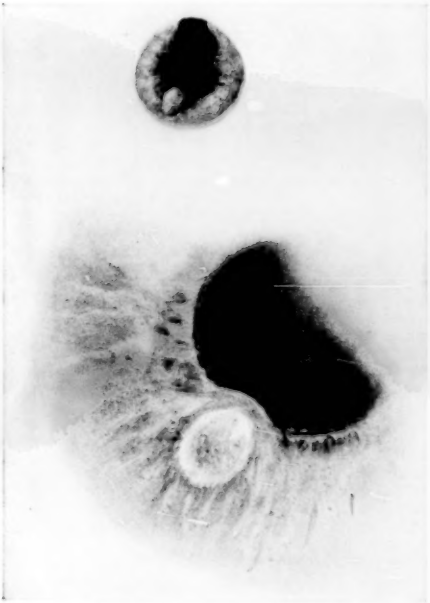

Fig. 10.—An adherent leukoma; secondary glaucoma; a broad iridectomy; vision 20/30, Type 1. The iris, incarcerated in the ulcer, is evident as a thin, atrophic layer. The margins about the iridectomy and pupil show a few narrow synechiae, and the superior temporal side a large, irregular triangle of unaltered retinal pigment. Fine pigment over and in stroma.

fiber detail. In other cases, particularly in brown iris, the margin seems thickened and rounded, and gives the effect of considerable pigment proliferation.

SUMMARY

Anatomic and embryologic changes heretofore only partly studied and very infrequently seen clinically are now a matter of daily observation.

Iritis can be diagnosed earlier, and prompt, efficient treatment materially lessens the severity of the attack.

After the attack, correct measures may be instituted for the prevention of recurrence, such as iridectomy in occlusion.

Although the iris, retina and choroid are directly continuous, the surprise has been the absence of any iris change in retinochoroiditis, neuroretinitis, simple detachment of the retina, choked disk or retinitis proliferans.

Glaucoma may be diagnosed earlier by the slit lamp, but it seems to me that if the methods we now have of careful tonometry and field observation have not helped an individual observer, then the more difficult of interpretation pigment migration is not likely to clear the diagnosis; for such migration has been seen in high myopias, compound hypermetropic astigmatism, hyperopia, primary optic atrophy with arteriosclerosis, and in cataracts of the cortical, capsular, lamellar, traumatic and secondary types.

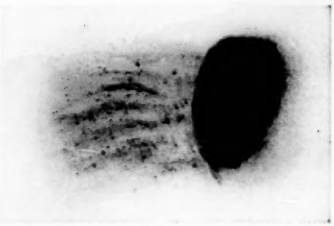

Fig. 11.—Chocolate colored deposits in and on the fibers of the iris in a boy, aged 11 years, whose only lesion was a low degree of hyperopic astigmatism.

In some penetrating wounds of the iris there is no change except at the direct site of injury, in contrast to the retinal pigment massing in any iris inflammation.

CONCLUSIONS

Variations from our previously considered normal are many. Marked gross iris changes are better understood after study with the lamp.

The inflammations of the iris may be promptly recognized.

Glaucoma can sometimes be confirmed by examination with this instrument.

The pigmentation of the iris demands the most painstaking study by many competent observers for some time.

Favorable and unfavorable cases for operation may be selected by its use.

Finally, the slit lamp is an addition to our diagnostic armamentarium only second to the ophthalmoscope; and, just as the older instrument yields results only after training, so the newer can be of its greatest service only after long study.

344 State Street.

ABSTRACT OF DISCUSSION

DR. HARRY S. GRADLE, Chicago: A question that is essentially of physiologic but eventually of pathologic interest is that of the approximation of the sphincter margin of the iris to the anterior capsule of the lens. Many authors, led

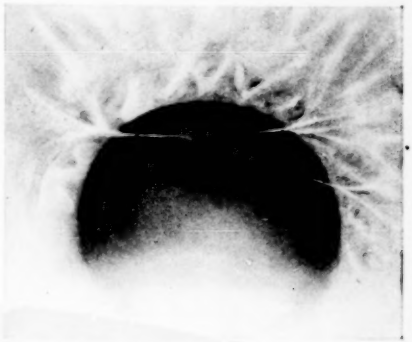

Fig. 12.—Retained pupillary membrane showing many fibrous attachments to the iris shelf.

by Hamburger, believe that this approximation results in a water-tight closure between the anterior and the posterior chambers, while those of the Leber school are convinced of the free communication between the chambers. A conclusive decision on this point would be of vast importance, with especial reference to the mechanical features of glaucoma. In a case with a localized, sharply defined area of atrophy in the iris stroma, the entire iris tissue of the area was replaced by a thin, flexible membrane, essentially a tambour of the iris. The membrane bulged forward until it protruded markedly before the anterior plane of the iris. Then suddenly it collapsed and resumed the former position in the plane of the retinal pigment epithelium of the iris. This phenomenon was interpreted as the result of a water-tight closure between the anterior and posterior chamber until the pressure of the aqueous in the posterior chamber was sufficient to overcome the approximation of the iris to the lens capsule, when the fluid spurted through the pupil, relieving the pressure on the posterior surface of the flexible membrane in the iris. I have observed a somewhat similar phenomenon in a young girl with congenital cataract. One lens had been needled twice, with the result that the anterior capsule was wide open and well retracted behind the iris. There were still a few floccules of cortex in the bed of the

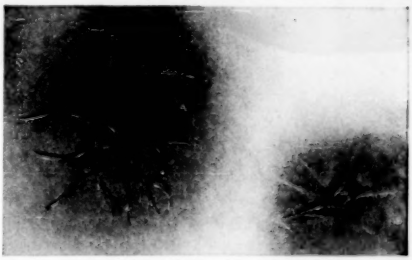

Fig. 13.—A group of congenital pigment cells on the anterior capsule. Patient had retinal blood vessel tuberculosis.

lens, and the posterior capsule was fairly opaque. In the exact center of the posterior capsule was a round aperture, approximately 2 mm. in diameter, through which she obtained normal vision with the proper correction. With the slit lamp, this aperture was found to be covered with a membrane so delicate that it could not be seen with the usual Coddington loupe. The membrane resembled a spiderweb in formation, minus the geometric regularity, and it could not be determined whether it was new formed tissue, hyaloid membrane, or thickened anterior vitreous. Irrespective of the source, it was extremely delicate and flexible. The membrane bulged forward fully 0.5 mm. and then receded to the primary position in the plane of the posterior capsule. The bulging occurred in the form of a tidal motion synchonous with the respiration, and continued throughout the period of observation. In all probability the pressure of the blood in the retina and choriocapillaries is increased during some phase of respiration, as is the pressure of the blood in the anterior portion of the eyeball. But the volume of blood behind the posterior capsule is much greater than that of the anterior portion and consequently an equal increase in blood pressure throughout would result in slightly greater pressure in the vitreous chamber than in the aqueous chambers. Such a slight change in pressure is insufficient to cause a manifest difference in an eyeball with normal relations; but the delicate membrane in the posterior cupsule, acting as a tambour head, allowed the observation of slight pressure variation between the vitreous and aqueous chambers.

DR. MARCUS FEINGOLD, New Orleans: I would like to relate the purpose for which I use the slit lamp and corneal microscope on the iris in certain instances. A young man complained of a dilated pupil in his left eye. He had had no discomfort. He had been strong and well and was not aware of any disease. I found an extremely dilated pupil, weakened accommodation, and a pupil which did not react at all to light. The physical examination was entirely negative; the Wassermann was negative. There was weakness of the extrinsic muscle in the other eye. My suspicion was that we were dealing with a case of lethargic encephalitis, one of those cryptic cases in which there had been no other manifestations of disease. Nothing was found by his family

Fig. 14.—Acute iritis: masses of retinal pigment layer on capsule; iris stroma freed.

physician. Less than a year later, he appeared again, with the same condition. I examined him with the corneal microscope and slit lamp, for the purpose of establishing whether any pupillary reaction existed. With a binocular loupe and focal illumination and an electric ophthalmoscope, I could detect no movement whatever of the sphincter. With the corneal microscope and slit lamp I found that on the temporal side the sphincter reacted; on the nasal side it did not react. Of course, this did not lead me any farther in diagnosis, but it is an interesting observation, and the future will tell what the case is.

DR. MARTIN COHEN, New York: Might it be wise to examine the iris tissue in regard to pigmentary changes in cases of suspected systemic disease; for instance, diabetes? Would we be able by the slit lamp and corneal microscope to recognize incipient pigmentary changes in the iris stroma?

DR. ARTHUR J. BEDELL, Albany, N. Y.: I have not seen any marked pigmentary changes in the conditions of which Dr. Cohen speaks. I particularly mentioned in the paper that in diseases in which we would expect to find some pigmentary changes, we have been surprised to find they were

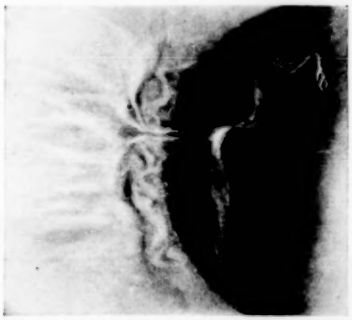

Fig. 15.—A congenital film veil coming from the iris shelf with a frayed end projecting forward. Three pigment masses, round, smooth, and without demonstrable structure. The inferior end lies behind the iris.

not present. Dr. Feingold spoke about pupillary reaction. You all know how difficult it is at times to decide whether or not a pupil reacts. I think the most accurate method is to have the patient before the slit lamp with the iris well focused and then turn the light on and off. In this way, even the slightest reaction is easily determined.

SOME COMPARATIVE RESULTS IN CITIES AND IN COUNTIES AS HEALTH UNITS*

A. J. WARREN, M.D.
Director of County Health Work, Kansas State Board of Health
TOPEKA, KAN.

The incorporated city as a unit of civil organization for the protection of the public health has so thoroughly justified its existence, efforts and expenditures that the question of the propriety of such an organization is no longer debatable. The evidence is all on the affirmative side.

Unfortunately, the county as a unit of organized civil efforts for the protection of the health of the people living in the rural communities and small towns is not so universally accepted. That the county as a unit has been neglected in the past is illustrated by the fact that the first position of full-time county health officer in this country was not established until 1911.[1] That the problem is still being treated with indifference is evidenced by the fact that of the 3,065 counties or equivalent divisions of the continental United States, only 161, or 5.2 per cent., were on Jan. 1, 1921, provided with a whole-time local health service. In other

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Pub. Health Rep., Nov. 18, 1921, p. 2832-2836.

words, only 8.21 per cent. of the rural population of this country was on Jan. 1, 1921, provided with local health protection.[1]

"The country is the weakest link in the sanitary chain" [2] because the country has been neglected on account of the prevailing opinions that "rural health work, on account of distance to be covered and other obvious factors, is relatively more expensive" [3] and difficult than urban health work. Such opinions have apparently been accepted as sufficient justification for indifference in applying the remedy, without the necessary evidence to demonstrate either the truth or the fallacy of the accepted hypothesis. The result of this accepted situation regarding cities and counties as health units has been a severe distortion of the once established facts. The urban death rates have declined as the result of the application by well organized municipal health departments of known sanitary and hygienic principles. The rural death rates have remained undisturbed as a result of the lack of application of the same principles, until controversy is rife in regard to whether the city or the county has the highest death rate.

The fundamental principles involved in the prevention of typhoid fever are the same for the country as for the city, and they are the same the country over. The same is true of smallpox, diphtheria, infant mortality and other diseases concerning which we have

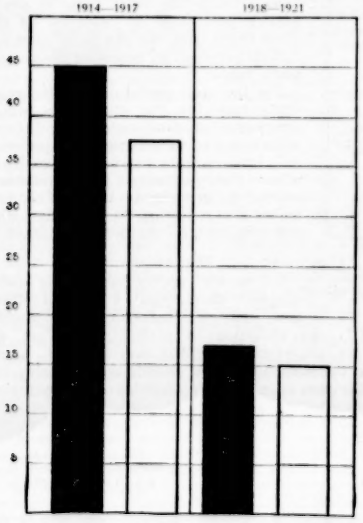

Chart 1.—Comparative typhoid death rates before and after the establishment of health departments: shaded area, cities; white area, counties.

fairly accurate knowledge. The only difference is in the practical application of the fundamentals involved to the given area. And even here differences are apparent only in the execution of the details, and are not general. Natural factors also favor the country dweller, and the present conditions are a reproach to our lack of efforts and intelligence.

In order that some evidence might be made available to disturb the present equilibrium toward which we are approaching, an effort was made to determine the relative cost of, and effectiveness of, public health work in

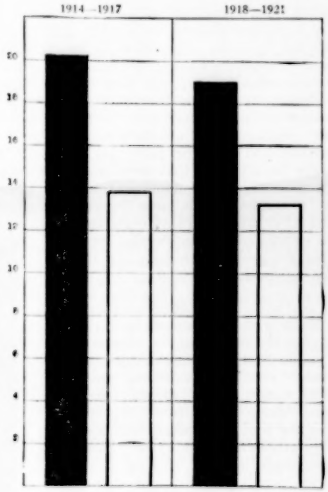

Chart 2.—Comparative gross death rates before and after establishment of health departments: shaded area, cities; white area, counties.

urban and in rural communities. A survey covering three cities and nine counties, all having well organized health departments, was undertaken.[4] The survey covered a period of eight years and involved a total average annual population of 461,244. Of this number, 108,534 lived in the three cities, and the remaining 352,710 lived in the nine counties. The cities ranged in population from 27,076 to 50,992 in 1921, with an average annual population for the four year period 1918 to 1921, inclusive, of 36,178. The counties ranged in population from 23,141 to 54,954, with an average annual population of 39,190 each for the four year period 1918 to 1921, inclusive. The cities and counties surveyed were all located in the central two thirds of the state of North Carolina, for the reason that in no other locality were the imperative factors of age of units and extensiveness of activities so favorable, and because of the fact that it was essential that the counties and cities involved should have some definite relations to one another. The counties and cities surveyed were all organized on a full-time basis on dates that were separated only by a few months. This wholesale organization took place between Jan. 1, 1917, and Jan. 1, 1918.[5]

The relative nearness of the dates of organization makes possible a division of the eight year period into two halves, one from Jan. 1, 1914, to Dec. 31, 1917, a four year period prior to the influences of organized health protection: the other from Jan. 1, 1918, to

2. Rosenau: Preventive Medicine and Hygiene, p. 475.
3. Lumsden, L. L.: Pub. Health Rep. 36: 2472 (Oct. 7) 1921.

4. Cities of Charlotte, Raleigh and Winston-Salem; Davidson, Edgecomb, Forsyth, Lenoir, Northampton, Pitt, Robeson, Rowan and Wilson counties (North Carolina).
5. Wilson County, Sept. 1, 1916; city of Raleigh, Oct. 10, 1918.

Dec. 31, 1921, a four year period during which the effects of organized public health efforts exert a positive influence on the respective communities. The nine county organizations were identical in personnel, plan of work and budget. The cities, while not so nearly identical as the counties, were similar in personnel, activities and budgets. In two instances the city health departments were organized and conducted for a short period by a personnel representing the United States Public Health Service. The three major problems of public health work—(1) the reduction of the filth-borne diseases of which typhoid fever may be regarded as the criterion, by means of sanitation, education and immunization; (2) the control of contagious and communicable diseases by quarantine, education and immunization, and (3) the reduction of infant mortality—were the activities that were first undertaken by the city and county health departments. It is possible, therefore, to compare with some degree of satisfaction the results after four years of organized effort, as expressed in the specific mortality rates, the gross death rates and the per capita expenditures.

TYPHOID FEVER

While there is no one perfect index by which to gage the results of the effectiveness of public health work, the one specific disease that approximates most closely this condition is typhoid fever. "The cause, mode of transmission, and prevention are well understood in theory and readily attainable in practice. Sanitation here finds its first fruitful field; hygiene, its useful lessons, and immunology its special application."[6] The degree of the effectiveness of the application of these principles will be very definitely expressed in the reduction of the specific mortality rate to a greater or lesser degree. And the application of these principles is the only known process that will abruptly alter the specific mortality rate in a community in which typhoid has been consistently prevalent over a period of years.

For the three cities, the typhoid death rate for the period 1918 to 1921, inclusive, shows a reduction of 62.13 per cent., as compared with the four year period 1914 to 1917, inclusive. For the same period of time the nine counties showed a reduction of 60 per cent. in the typhoid death rate.

The state as a whole (exclusive of the three cities and nine counties) for the same period of time showed a reduction of 49.55 per cent., which gives the cities a

TABLE 1.—TYPHOID DEATH RATES *

	Cities	Counties	State
1914-1917	44.9	37.3	31.38
1918-1921	17.0	14.9	15.83
Percentage of reduction	62.13	60.0	49.55

* The statistics were supplied by the Bureau of Vital Statistics, North Carolina State Board of Health.

reduction in excess of the whole state of 20.24 per cent., and the counties a similar reduction of 17.41 per cent.

It is to be noted that while the cities show a slightly greater reduction in the typhoid death rate, the county rate is 11.7 per cent. lower than the city rate, and 3.8 per cent. lower than the rate for the state as a whole.

6. Rosenau: Preventive Medicine and Hygiene, p. 105.

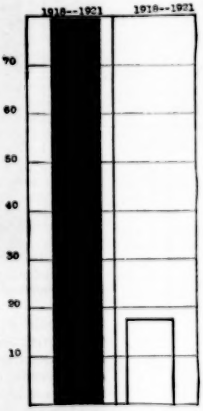

Chart 3.—Per capita expenditures in three cities and nine counties for health departments: shaded area, cities; white area, counties.

GROSS DEATH RATES

The composition of the population living in the rural area and the small towns, and in the cities as regards age, sex and nationality are of sufficient similarity to

TABLE 2.—GROSS DEATH RATES *

	Cities	Counties	State
1914-1917	20.3	13.8	13.10
1918-1921	19.0	13.3	13.33
Percentage of reduction or increase	— 6.4	— 3.6	+ 1.7

* The statistics were supplied by the Bureau of Vital Statistics, North Carolina State Board of Health.

make a comparison of the gross death rates between the urban and country areas of considerable value.

For the three cities, the gross death rate for the four year period from 1918 to 1921, inclusive, decreased 6.4 per cent., as compared with the four year period 1914-1917, inclusive. For the same period the nine counties showed a reduction of 3.6 per cent. A very significant factor to be noted here is that while the cities show a much greater reduction in the gross death rates, the excessive gross death rates of the cities make the reduction relatively easier, and make a greater reduction possible in the cities. While the cities have shown a greater percentage of reduction of the gross death rates, the city death rates are still 30 per cent. in excess of the county death rates.

For the same period of time the gross death rate for the state as a whole (exclusive of nine counties and three cities) showed an increase of 1.7 per cent. All of this increase was for the year 1918, when the mortality from influenza reached its crest in the state. This fact makes the reduction in the three cities and nine counties the more significant.

PER CAPITA COST

All money expended for public health purposes should have a twofold objective: (1) the reduction of morbidity and (2) the reduction of mortality. As yet we have no universally accepted standard for determining the reduction of the morbidity. Probably the mortality rate is as accurate an index of morbidity as

TABLE 3.—POPULATION AND EXPENDITURES

	Annual Population	Annual Expenditures	Annual Per Capita Cost
Counties *	39,190	$ 6,835.60	$0.174
Cities †	36,178	28,911.92	0.799

* Data furnished by Bureau County Health Work, North Carolina State Board of Health.
† Data furnished by city health officers of Charlotte, Raleigh and Winston-Salem.

any of the methods that have been advocated. At the present time the mortality rates must serve as the twofold index for estimating the degree to which the money that is expended has accomplished its original objectives.

In reducing the mortality rates 6.4 per cent., the three cities expended the sum of 79.9 cents per capita. The

nine counties spent 17.4 cents per capita in effecting a reduction of 3.6 per cent. in the gross death rates.

CONCLUSIONS

The conditions in North Carolina are not representative of the conditions in Kansas or in Maine. The cities and counties of North Carolina do, however, have a definite relation to one another. The cities and counties of any other state have a similar relation.

The parallel that has been drawn is not exact. No similar comparison can be exact.

The evidence submitted proves, conclusively, nothing. It does, however, suggest that the charge that rural health work is more expensive and difficult than urban health work needs modification, if not a complete withdrawal.

ABSTRACT OF DISCUSSION

DR. W. S. RANKIN, Raleigh, N. C.: As to the importance of developing full-time county health departments, and the comparative ease with which such work is done, I think that all state health officers who have concerned themselves with this problem have been encouraged with their success in inducing the counties to see the importance of making arrangements for taking care of the health and lives of their people. The full-time county health officer problem is, in a sense, a psycho-epidemic affair. Get a few counties started and produce results. Establish a fairly practical satisfactory plan to work and it is easy to carry the idea into the adjoining counties. When one considers the opportunity in this particular field as compared to the opportunity of developing urban health work, and when one thinks of the 3,065 counties in the United States with only 6.5 per cent. having full-time health departments, one can see what a vast field of opportunity exists. In the South it has been much easier in recent years to develop rural than urban health work. The main restriction in rural health work is not the willingness of the people to put in a health department but the difficulty of obtaining health officers who can put through the idea that the people have endorsed. In going into a county, the usual procedure is to see first an influential group of men. In my opinion the influential group which should be consulted first is the professional group. We have neglected too much the matter of conferring with the local profession. It does not make any difference what we are going to have done in that county, it has to be done through the local profession. The recognition and prevention of disease and clinical diagnosis are things for which one has to depend on the local profession. The doctors ought to be seen first if for no other reason than as a matter of proper respect. The profession, because it has not been consulted as it should have been, has not understood what was going on, and the lack of cordial relations has resulted in a certain indifference. Ordinarily it is easy to get the approval of the county medical society to put in a county health department if one presents a reasonable proposition. When health officers fail to get the approval of the county medical society for a full-time health department, it means that either the profession of that county is unreasonable or that the man who is selling the proposition is not a good salesman. I want to add my full endorsement to the conclusions drawn by Dr. Warren.

DR. J. A. HAYNE, Columbia, S. C.: I have neither respect for nor confidence in any statistics, but Dr. Warren's statistics are extremely interesting. He showed that with a per capita tax of 15 cents a considerable reduction could be made in the death rate of the rural population. Coming from a state that has 85 per cent. rural population, this is a matter of some interest. The full-time health officer was stressed for a long time. I never believed much in whole-time county health officers. I do believe in whole-time county health departments. County health officers cannot do well without sufficient support. They must have the same support as a city department of health. Some years ago we had the idea that in a county thirty miles long and twenty miles wide one county health officer could accomplish results by simply being there. We found that this did not do any good except to provide a rather comfortable place for the man who had the position. At present we believe in having county health departments with trained county health officers at the head, a nurse or two, sanitary inspectors and a clerk-stenographer, and, if necessary, a sanitary engineer and all the necessary equipment for doing proper health work. Most counties have more than 30,000 population. Would a city of 30,000 population think it was doing justice to the people if it did not have a health officer? Why does a county of 30,000 population think it is doing its duty to the citizens by having health officers who occasionally appear during epidemics and usually make themselves very disagreeable to the physicians? In South Carolina the medical profession of the state is the department of health of the state. That is the proper way. That is the board of health that is going to succeed. When you leave out the physicians and try to put in health officers you are going to fail.

DR. W. L. HOLT, Knoxville, Tenn.: I had some experience in county health work in Los Angeles County, California. All the rural health work in the county of 4,000 square miles was managed from the central office in Los Angeles. We had two or three deputy health officers and about six nurses and two inspectors, and did a great deal of work. The splendid roads everywhere enabled us to travel fast by automobile, and I often traveled a hundred miles a day in visiting only a half dozen cases. The cost of administration for each case is much greater than it would be with about six cooperative health departments, each covering both the urban and rural territory in its district. Of the total population of about a million in the county, about 800,000 were inside the thirty-three cities and towns in the area and cared for by municipal health departments. The remaining 150,000 were scattered all over the great county and were cared for by the county health department in an efficient but uneconomical way.

AN EXPERIMENT IN GRADUATE TRAINING IN OTOLARYNGOLOGY*

GEORGE E. SHAMBAUGH, M.D.
CHICAGO

Facilities for providing training in otolaryngology have not kept pace with the public need for specialists or with the demands of those desiring to take up this work.

A survey of the situation reveals the fact that substantial training in otolaryngology is being provided in a few special hospitals, but, of course, only for the limited number of men which the needs of these hospitals require as interns. For most of those who attempt to get special training, there remains only the opportunity of taking such work as is provided in postgraduate schools. Before the war, there had developed an increasing tendency for men to seek training by going abroad. This work, like that of postgraduate schools, was restricted largely to attendance at clinics and to the taking of short intensive courses, suited especially, as review work, for those already established in special practice, but not for providing the proper fundamental training necessary for preparing men to be specialists in any field. Even the training acquired by serving as intern in special hospitals has been more or less one-sided, for these men necessarily see an overemphasis on operative work, and have relatively little opportunity for the more difficult and much more important training in

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

making careful examinations of patients and in diagnosis. The lack of facilities for acquiring a proper preparation for special practice, the faulty training acquired in our existing institutions, where operative technic is chiefly emphasized, with a neglect of proper attention to the more important and more difficult problem of acquiring training in making examinations and in diagnosing conditions, has resulted in the tendency for indiscriminate, unnecessary operating, which has, in recent years, brought a distinct opprobrium on the specialty of otolaryngology. In recent years, I have seen many more patients in whom there had been uncalled for operation on the nose and throat than patients in whom operative treatment seemed indicated.

The question of what constitutes the proper minimum standard of preparation for the practice of otolaryngology was discussed by the Council on Medical Education of the American Medical Association at its meeting a year ago.[1] The committee on otolaryngology, in its report, insisted that the work should be as much in the fundamental sciences as in the clinical study of cases, and that the work must be on the basis of genuine graduate instruction, in which the student is led to do his work independently under proper supervision, but not by the method of forced training; that is, by taking didactic courses and clinics. This committee further recommended that a proper minimum training for special practice should consist of one year's full-time work, one half of each day being spent in the laboratories of a university studying the fundamental sciences, the other half day in a properly equipped and properly organized outpatient department of a Class A medical school, where the student occupies the position of clinical assistant. On the completion of this first year's fundamental training, the committee recommended that a second year be spent in serving as intern in a special hospital, or as resident in otolaryngology in a general hospital. When such positions are not available, it was recommended that an additional six months be spent pursuing special work in other centers, such as selected courses in postgraduate schools, or by serving as assistant in the office of a specialist.

I desire at this time to point out some conclusions regarding graduate training in otolargyngology which we have reached, after more than two years' experience, in an effort to carry out the principles laid down in the report mentioned above.

The first conclusion of primary importance is that facilities for providing the proper sort of graduate training in our specialty in any institution exist only for a limited number of students. This is a fact which every institution must learn before it can hope to carry out successfully the proper sort of graduate training, as outlined above. The number of graduate students in any school is determined by the number of clinical assistants required to care properly for the work in the outpatient department. The principle is exactly the same as that which applies to the work of interns serving their fifth or hospital year, now required before receiving the degree of doctor of medicine. The number of interns in a hospital is determined by the number of men required to take proper care of the hospital work. It would be just as logical for a hospital to adopt the plan of taking on a superfluous number of interns and then attempting to substitute for actual intern work some sort of didactic instruction, attendance on clinics, etc., as it is to insist on these methods of instruction for large classes of graduate students in otolaryngology. The first principle in properly conducted graduate instruction is to lead the student to do his work independently, not by relying on methods of forced instruction, listening to didactic lectures or watching other men do their work.

In our outpatient department at Rush Medical College, we have, at present, facilities for only eight clinical assistants. Our class of graduate students in otolaryngology, therefore, is limited to eight men, who remain with us for one full year, working every afternoon in the outpatient department. This may seem a small number of graduate students for an institution with the clinical facilities of Rush Medical College. As a matter of fact, it is all that we are at present able to take care of properly, with our facilities. We feel satisfied that we are doing our full share by providing proper training for eight men each year. If only twelve of our best equipped Class A medical schools would arrange their work to provide proper clinical facilities for a similar number, the estimated needs in this country for specialists in otolaryngology would be amply provided for. The problem, therefore, of providing this first year of fundamental training is not a formidable one, but is easily attainable in our existing institutions.

I wish to outline briefly the way we have worked out the organization of the outpatient department, so that the work of these clinical assistants is properly supervised and directed, while they are, as far as possible, permitted to do the actual work of the clinic.

Two clinical assistants are taken on each quarter, January, April, July and October. During the first quarter, they are put to work examining the simpler types of nose and throat cases, learning how to make accurate records of their findings. For their direction in this work, we have provided an elaborate outline of the things to look for in making these examinations. The second quarter is spent in a similar manner in the ear room, learning how to make the various tests and the compilation of proper records. During the third quarter, they are at work again in the nose and throat room, where they are entrusted with the care of the more complicated cases and are permitted for the first time to carry out such treatments as require special technical skill; as, for example, the irrigation of sinuses. The fourth quarter is spent in the operating room, where they are taught the technic of operations and, eventually, are entrusted with most of the routine operating.

In this way, we are able to see to it that the student learns how to make examinations and to recognize the proper indications for surgical treatment before he is taught the technic of operating. A neglect of this fundamental principle has been responsible for the widespread ill-advised indiscriminate operating on the nose and throat with which this country has in recent years been flooded. The chief menace from this source has come from the practice introduced in many of our general hospitals of teaching interns in general medicine such operations as the enucleation of the tonsil, the removal of turbinated bodies and the resection of anatomic variations of the nasal septum. These men have had no opportunity to acquire an appreciation of the proper indications for these operations, and it becomes clear as day that men with such training cannot avoid the risk of doing unnecessary operations. It is a relatively simple matter to teach a student the tech-

1. Graduate Instruction in Oto-Laryngology, Report of Committee at Annual Congress on Medical Education and Licensure, A. M. A. Bull. 15: 40 (Jan. 15) 1921.

nic of operating; whereas, it requires many months of careful painstaking work to instil an adequate appreciation of the proper indications for these operations.

The direction and supervision of the work of these graduate students serving as clinical assistants is entrusted to a staff of regular appointees in the department. The staff is arranged in three groups, each group being in attendance but two afternoons of the week. Our aim is to have three men in each group. These men act as chiefs of clinic, directing and supervising the work of the clinical assistants, deciding questions of diagnosis, and what treatment is to be carried out. The introduction of graduate students as clinical assistants has made the work of the regular staff more interesting and profitable, since they are relieved in a large measure of much of the routine work. The patients are receiving better care than we were ever able to provide when we relied on physicians from the city to come out to help us with the work. The graduate students are enthusiastic over their work, for they appreciate that they are getting a sort of training which no amount of didactic course-taking or attendance on clinic could give them.

We find, after a trail of more than two years, that our experiment is a complete success; and we believe that we have solved, for a small group of graduate students, the problem of acquiring proper training for undertaking special practice.

I have discussed here only the half day devoted to the clinical study of cases. Our plan contemplates spending the other half day doing the same sort of independent work in the laboratories at the University of Chicago, this time being largely spent in acquiring a first-hand knowledge of the complicated anatomy of the ear, nose and throat. While pursuing this anatomic work independently, the students are encouraged to take advantage of lectures at the university covering such subjects as the physiology of the special senses, the anatomy of the central nervous system, the anatomy of the special sense organs and the physics of sound. Attendance on the lectures, two or three hours each week, of one of these courses each quarter does not interfere seriously with their major work in anatomy. We believe that, by attending such lecture courses, the students receive an introduction to those subjects which prepares the way for their pursuing such studies independently as facilities and inclination permit. Those who desire may substitute, for part of their independent work in anatomy, similar work in the department of pathology.

We aim to encourage these men, on the completion of the year's work with us, to secure, if possible, a place as intern in a special hospital, or as resident in otolaryngology in a general hospital, where they will have an opportunity of seeing more of the unusual surgical procedures. We feel that, eventually, when several of our Class A medical schools arrange their work to provide similar training each for a suitable group of clinical assistants, special hospitals throughout the country will choose to select their interns from men who have completed this first year's training. We look forward also to the further development in various medical centers of short intensive courses covering the different phases of our special work, to which will be admitted these students who have completed the year's work as clinical assistants, as well as others who are already established in special practice. We confidently hope that the time is not far off when such courses will not be offered as a substitute for the real graduate training as outlined for the Council on Medical Education in the report already cited.

We wish to emphasize that the program here outlined as proper training for those preparing for special practice does not mean the giving up of instruction to large classes of graduate students, either in postgraduate schools or through similar courses undertaken by university medical schools. But we do insist that this type of work can never form the basis of proper preparation for special practice, even when pursued over a period of months or years. The foundation work of a proper preparation must consist in the student's receiving that training which can be obtained only by his serving an apprenticeship in actual work, such as the facilities of a properly conducted outpatient department can provide. We repeat that special courses, clinics, etc., such as are provided in postgraduate schools and in some of our university medical schools, are suitable as advanced work for those who have had the first year of fundamental training, or as review courses for those already established in special practice. They should not be offered as a substitute for the training we are advocating in this report. Facilities for this kind of work exist in any institution only for the limited number of students necessary to aid in the proper care of patients in the outpatient department.

The granting of a certificate suitable for display in the physician's office, setting forth that the holder has had adequate preparation for taking up special practice, would aid the public materially in distinguishing the bona fide specialist from the impostor, the pseudo-specialist, recruited largely from the ranks of derelict general practitioners, whose sole preparation consists of a few weeks' or months' attendance on courses in postgraduate institutions, where they have acquired a smattering of knowledge relating chiefly to the technic of a few operations, but have acquired no proper appreciation of their indications; and who lack entirely the training necessary to prepare men for special practice. Such certificates should properly be issued by the institution in which the first year's work has been taken, the certificate being granted only on the completion of such additional work as meets the approval of this institution.

There has been much discussion of the question of requiring some sort of examination before granting a certificate setting forth that the holder has had the proper training preparatory for special practice. The ophthalmologists have a special board for giving these examinations. Our feeling is that an examination is not called for, and that a certificate stating that the student has completed certain work, including a year such as we have here outlined, is in itself a better assurance than any examination could possibly be that the holder has had proper training.

As regards the granting of higher degrees, we can expect the universities to stand as ready to grant such degrees to students in otolaryngology as in any field, whenever the work pursued meets the established requirements for the granting of these degrees. Those who are ambitious to hold important positions in the departments of otolaryngology in the university medical schools should be encouraged to pursue the studies leading to the degree of Ph.D. in otolaryngology, exactly as the men preparing for positions in the departments of anatomy and physiology intend to gain the degree of Ph.D. in anatomy or physiology before beginning their careers in these departments.

CONCLUSIONS

1. The practice of otolaryngology has degenerated perhaps more than has the work in any other field of medicine. This is the result of a widespread tendency for men to restrict their practice to this field with no preparation except a little training in the technic of a few operations. The extent to which the work in this field has degenerated is indicated by the practice, common in some sections of our country, of visiting nurses selecting children for tonsil and adenoid operations, sending them to hospitals, where, often without examination, some so-called specialist proceeds to do the operation. I should prefer to see the nurse trained to do the operation, provided a properly trained specialist made a discriminating examination and selected those cases in which surgical treatment was really indicated. This indiscriminate operating on the tonsils and adenoids is a fair index of the general laxity regarding practice in our specialty.

2. The bettering of existing conditions must be brought about largely by pressure from the rank and file of the general medical profession. It should be our task to aid, by a propaganda of education, in crystallizing, in the minds of the general practitioner, ideas regarding the proper preparation for special practice. Two popular fallacies must be dispelled: the belief that limiting practice to a particular field makes of one a specialist in that field, and the idea that in taking up the practice of a specialty one is undertaking something easier than the practice of general medicine. The medical curriculum aims to prepare its graduates for the practice of general medicine. To be a specialist in any particular field should mean to make an exhaustive study of that field.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BECK, Chicago: I agree with everything Dr. Shambaugh said. We have, perhaps, enough places where men can get this training, but they are not very well known. So far as I know, Dr. Shambaugh's place is the only one to which we can refer men for this one year of systematic work. I have seen the men afterward, and they certainly are well prepared. Especially is this true in regard to their surgical experience. One very important point is that the men who know how to teach are not, as a rule, giving the time to teaching. That is the trouble in this country so far as teaching and training men is concerned. That is the reason so many men go abroad. Dr. Shambaugh touched on the point of training the individual man. Put one or two men in your office. That is the best preparatory training they can get. I have been training men for fifteen years. I do not take any man for less than two years, because I cannot give them a sufficient number of surgical cases in one year.

DR. CHARLES G. STIVERS, Los Angeles: Dr. Shambaugh's excellent paper is devoted almost exclusively to the physical features of the otorhinolaryngologic side, and he deplores the lack of training in almost exclusively the surgical features of these organs. We are given organs to use, and the function of the organs of throat, mouth and nose is to be servants of the special senses. Nothing has been said about the restoration of function after putting all these organs in proper condition. I deplore the fact that thousands of men are doing ill advised and hasty operations on the nose and throat, as I do the fact that they know nothing whatever about the restoration of function of these organs after operations have been done, and I feel that any group instruction which fails to recognize that the function of these organs must be preserved and restored, after destructive surgery has been done, will fall short of its mission.

DR. WENDELL C. PHILLIPS, New York: In his recent address before the Congress of American Physicians and Surgeons in Washington, Dr. Frank Billings expressed the opinion that overspecialization in medicine was becoming a grievous sin in America, and there probably is more or less basis for such a criticism. My own response to that statement is that there is overspecialization in America so far as pseudospecialists are concerned, but underspecialization so far as real specialists are concerned. I have had considerable experience in graduate teaching. I have thought seriously on this subject, and this experience in teaching, together with a careful study of the whole problem of preparation of specialists in this country, has given me rather deep convictions on the subject. Up to a few years ago the training that was considered the best for a young man to receive in order that he might know the field of specialism in diseases of the nose and throat was to secure an internship in one of the great special hospitals of the country, and in the Manhattan Eye, Ear and Throat Hospital, there has been a great demand for these positions. We have eleven house staff positions, and often fifty or sixty men apply. The reason men seek these positions is that they furnish such unusual opportunity for acquiring the surgical technic of nose, throat and ear operations. It is very evident that in a hospital where nearly 1,000 patients come each day as outpatients, where from thirty to sixty-five ether operations are performed daily, when a young man is inducted into that special work, surgery occupies his entire time and thought. One can see how he becomes imbued with the surgical side of it during his early years. He serves his term in an institution of this kind, and becomes an expert in surgical procedure, but when he goes out into practice it takes him some years to acquire a knowledge of the basic principles of the subject, and he begins to feel the seriousness of the position in which he finds himself placed. Dr. Shambaugh has struck the keynote of the whole problem, and I wish that this section could go on record that any man who proposes to enter our specialty must first go through this basic training in the fundamentals of the work, learning the physiology, anatomy and other branches as Dr. Shambaugh teaches them, and then after he has gone through that experience, secure a position in a special hospital and learn the surgical part of it.

DR. CHARLES W. RICHARDSON, Washington, D. C.: I have been associated for a number of years with this work of trying to find the best method for the education of specialists in otolaryngology. Dr. Shambaugh is the first one on that committee to be able to carry this work into practical trial, and I do not know of any method that is better than that which he has adopted. We have previously taught men backward. We have been conducting them into the field of surgery and neglecting their proper clinical instruction by failing to give them the advantage of dispensary work. In the special hospital of which I am a staff member, we insist that the interns work in the dispensary. They can do a tonsillectomy, they can operate on the septum or on the sinuses; but take them to the dispensary and they do not know how to depress a tongue properly; they cannot pass a catheter—they cannot do the ordinary, routine things necessary for diagnosis, to say nothing of practical, ordinary treatment. When we see this we cannot praise Dr. Shambaugh too much for his work in this line. Another phase of the subject that is equally important is undergraduate teaching. There is too much teaching of the young man in specialism. In the universities the idea is that we are to teach medicine to the young men in the medical course; we are to make them general practitioners, not specialists. Any man who goes from the benches to specialism is a failure.

DR. M. A. GOLDSTEIN, St. Louis: The old men are essentially clinicians and diagnostic experts. I subscribe to everything Dr. Shambaugh said. He is an altruist, and so am I. I believe that his whole problem is ideal, but in greater part it can be carried out practically. I can count on my fingers

the men of the "Old Guard" who are grounded in otolaryngology and in micropathology. Everything in the discussion so far has tended to a consideration of the clinician, the diagnostician and the technical expert; but we must not lose sight of micropathology. That is the fundamental basis on which we should build. Dr. Pierce, who has charge of the Casselberry prize fund, will tell you that there has not been an applicant for that honor. A number of valuable prizes are offered by the three national organizations, but I think that on only one occasion has any prize been given for research work. If we want to compete with the work done abroad, we must ground not only our young men, but also our old men, in the fundamentals, and the fundamentals consist not only of clinical knowledge and diagnosis, but also of micropathology.

DR. NORVAL H. PIERCE, Chicago: I would not have you think that Dr. Shambaugh's training of specialists is a makeshift affair. I assure you that it is very much alive and practical. He is doing very good work with somewhat limited facilities. The whole proposition is founded on the fundamentals. The advances in otolaryngology and the improvement of the practitioners of otolaryngology must come from their fundamental knowledge of the histology, the anatomy and physiology, normal and pathologic, of these organs. I think it is a mistake to divide the two—one-half fundamentals and the other half clinical. I think it would be better to force a man to spend a given length of time on the fundamentals alone, before he takes up the clinical training. The little details of office practice soon wear away the fervor of the otolaryngologist. Unless one has intelligent training back of one, unless one has the dreams of the laboratory to sustain one, one is bound to degenerate. That sustaining imagination starts in the fundamentals, not in the taking out of tonsils and operating on septums. If we are going to gain a place in medicine, it must be through research and investigation. We have funds available, but no one makes any effort to win the prizes. It is deplorable. I do not believe I am wrong when I say that there has not been in this country a single case of otospongiosa or otosclerosis diagnosed during life that has been examined histologically. We are fed from foreign sources. We have become supine because of our lack of courage and training; and, unless this is changed, I do not believe that we can maintain this quasiequilibrium that we have been maintaining for a few years past.

DR. JACQUES HOLINGER, Chicago: The question of the education of specialists and advance of the science of anatomy, physiology and diseases of the ear, nose and throat is a question of money, and of much money. In order to make any real advance and do original work, especially laboratory work, to amount to anything, three things are necessary: a very large clinic with from 10,000 to 12,000 patients a year; a very large, first class laboratory, and good connection with abundant postmortem material which can be had absolutely fresh. Unless one can get these things together, there is no possibility of starting on the fundamental training of specialists. The one year course of Dr. Shambaugh is very nice. However, it will be admitted that instead of one year you could make it three or four years to go through all the phases of anatomy, physiology, embryology, clinic and laboratory work and the operating room. You would come nearer to having specialists who are masters of their branch.

DR. WILLIAM B. CHAMBERLAIN, Cleveland: I want to add my word of commendation to what Dr. Shambaugh has said. Two things confront one in the establishment of such a plant; first, the proper care of the postgraduate student; and, second, the proper care and attention to the undergraduate student at the same time. That is one point which Dr. Shambaugh did not mention and which he has very well cared for. In Class A schools, while we are taking care of the postgraduate students, we must not forget that we are also obligated to undergraduates, and the two cannot be confused. I was glad to see that Dr. Shambaugh laid such stress on the fact that the men were there six months before they were allowed in the operating room. As many of the speakers have said, we have overstressed the technical part, the purely operative training. I have maintained with my students for many years that the technical part of our specialty is the least. We can take any good mechanic, any good machinist, any good carpenter, and make just as good an operating specialist as any of ourselves; but the development of the man in medicine and surgery with medical and surgical judgment is something far more difficult to obtain. For years we have had a universal panacea for stupidity in Cleveland. A visiting nurse examines a stupid child, and sends the child to the nose and throat clinic; his tonsils and adenoids are removed, and he is supposed to return to school one of the most brilliant pupils in his class. Unfortunately, this does not hold true. The diagnosis is made by the visiting nurse, and the operation is done by the specialist under her direction. It would be far wiser if the diagnosis could be made by the specialist, and the operation performed by the visiting nurse. Any Class A medical school can establish such a plant if it has the men with inspiration to do it. The most difficult thing in our postgraduate schools is to provide suitable instructors. Not that we do not have these men; but the men who have the knowledge and the ability are not willing, or cannot afford, to spend the time; whereas, in foreign clinics a large part of the annual stipend comes from association with students.

DR. GILBERT E. SEEMAN, Milwaukee: I have been for some years interested in the medical school of the University of Wisconsin. We now have the problem before us of completing our medical course, and it is a gigantic problem, particularly in the matter of the adjustment of compensation. It is our experience in the university that in the field of medicine, outside the operative field, we have no very great problem in the matter of getting teachers, of obtaining adequately trained men to head departments, at the ordinary professorial salary. But in those fields involving operative work it is our experience, first, that we have difficulty in getting young men adequately trained to take subordinate positions; and secondly, that we cannot get experienced men who are willing to take the professorial salary and head the departments. I think the reason largely lies in the trend in medicine, and particularly in the field of otolaryngology. It seems to me that in recent years it has developed into a matter of tonsil operations in most sections of this country. Young men measure their success, and the success of all men, by the number of tonsils they remove, the number of submucous operations they do, and not at all by the knowledge they have of anatomy and physiology. I am very glad, indeed, to hear an expression of sentiment deploring the condition which exists. The men in this specialty have developed into tonsil operators, and unless the trend is stayed by these older men in the specialty who have the authority to speak, I believe that the specialty of otolaryngology will come on days that will be sad for those men who have tried to prepare themselves adequately in medicine and adequately as specialists in this field.

DR. GEORGE E. SHAMBAUGH, Chicago: It is necessary, first of all, that we arrive at a definite conclusion as to what we should strive for in the matter of preparing men for special practice. What we are advocating for a proper basis for training is the plan that has been accepted as a proper basis for training abroad for many years. The courses which were provided American students abroad were not the courses which their own men took in getting their preparation. They followed the method which I am advocating, namely, serving a period as clinical assistant in a properly conducted department where each man worked out his own salvation. This cannot be accomplished by sitting on benches and listening to some one tell how he did the work. No better illustration of the necessity in this country for more training in diagnoses before men are taught operative technic, can be found than the statistics given in the paper just read by Dr. New, wherein patients had been subjected to operations repeatedly under circumstances in which any properly trained specialist could tell them at once that such operations were entirely useless. I emphasize that too many men limit their prepara-

tions to acquiring some operative skill without any proper knowledge of the proper indications for operation. The desirability of stimulating research work has been emphasized by several speakers. This is a very important matter. I am inclined to think that this result will best be accomplished by the establishment of fellowships which will make it possible for younger men who have completed one or two years of this special training to continue advanced work there a year or more. With the long period of medical training now required, unless some special assistance is provided in this way most men are forced to devote their entire time to the problem of making a living.

TUBERCULOSIS AMONG THE EX-SERVICE MEN

WITH A SPECIAL REFERENCE TO ITS BEARING ON PUBLIC HEALTH *

HUGH S. CUMMING, M.D.
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WASHINGTON, D. C.

A general impression apparently prevails among the laity that the incidence of tuberculosis was greatly increased in the United States by the World War. It is not surprising that this idea is current. Care of the disabled has naturally been a matter of general solicitude. Difficulties encountered in providing sanatorium treatment were given wide publicity and sometimes exaggerated. Moreover, the appalling increase in tuberculosis which occurred during the war in most countries of Europe, and which still prevails in Austria and Russia, has become common knowledge. Among all those nations, including some nonbelligerents, whose food supplies were seriously affected and which felt keenly the stress of war and its results, tuberculosis increased, indeed, to an alarming extent. It is natural, therefore, although this country was fortunately spared the pinch of famine, the desolation of invasion and many of the fears, griefs, deprivations and other forms of stress which try the spirit, waste the body and therefore predispose to tuberculosis, that our citizenry should anticipate an increase of tuberculosis here and, in the same pride with which they demanded a place in the fighting line, count their casualties in kind.

It may be recalled that in 1919, when making a forecast of hospital needs, it was estimated by the Public Health Service that approximately 12,000 beds would be required within two years for tuberculous veterans. It is also a fact that by the end of April, 1922, there were 11,346 tuberculous veterans hospitalized at government expense in the United States, as well as considerable numbers receiving compensation for that disability who declined hospital care. The incidence of tuberculosis was, however, only slightly increased in the United States during the war, either among males of military age or any other class of population. The forecast of hospital needs referred to above, which has proved to be approximately correct, was made merely in accordance with the known incidence of tuberculosis among the general population in the age groups concerned. A glance at the curve (Fig. 1) shows how sensitive the tuberculosis mortality is to collateral influences. The slight but perceptible rise in 1916 and 1917 is presumably due to the increase in living costs or perhaps, more exactly, the degree to which this increase exceeded that in wages or other rewards for production. To these causes must be added in 1918 that of the epidemic of influenza. There seems little doubt that these increases were not related to actual participation in the war.

The curve (Fig. 2) comparing the mortality rates of 1915 and 1920, shows a marked postwar decline in tuberculosis mortality which is even more marked among males, including those of military age, than among females. It is, I think, generally accepted that the incidence of tuberculosis in any country, in both sexes and at every age except infancy and childhood alone, reflects with great precision the living and industrial conditions prevailing. It is therefore not strange that tuberculosis was not increased among our troops, who were generally well fed, well housed, and well clothed, or, except to a very slight degree, among the population as a whole.

The War Risk Insurance Act of Oct. 6, 1917, promised hospital care to disabled veterans, but made no provisions for the construction or operation of hospitals, nor did it name the agency whereby the proposed care was to be provided. It was, of course, impossible to reckon at that time with the desire which manifested itself, as soon as the armistice was signed, for discharge from military and naval service. This prevented extensive use of military and naval hospitals for discharged men, who usually evidenced a distaste for all things connected with military life. It was a perfectly natural reaction, considering the psychology of the situation, and one which in no way reflects upon the excellent treatment provided by the Navy and Army hospitals.

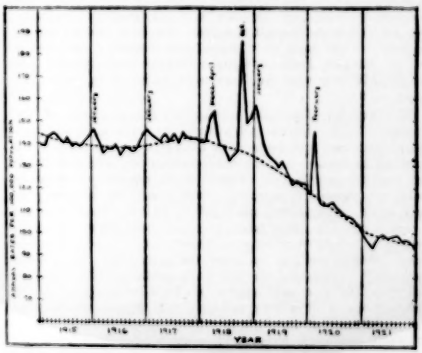


Fig. 1.—Recent decline in mortality from all forms of tuberculosis; monthly rates from 1915 to 1921 in twenty-four states (in 1921, provisional data for only fifteen states were available), normal seasonal variation having been eliminated.

It was not, therefore, until March 3, 1919, that by act of Congress the Public Health Service was named as the principal agency whereby hospital and medical care was to be provided. The emergency was serious. To place a properly trained physician in each city or large town in all parts of the United States, to find hospital beds for the widely scattered disabled veterans who applied for examination and treatment in all parts of the United States, and to equip, man and operate

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

such institutions in various parts of the country as could be converted to hospital use—these were some of the urgent problems that arose. The tuberculosis patients caused considerable concern, and it was early apparent that the emergency hospital provision was at once necessary. Congress, in failing to act favorably on the recommendations contained in House Document 481, which was transmitted by the Secretary of the Treasury, Dec. 8, 1919, reflected the idea, not wholly extinct among medical men, that permanent hospitals are not necessary for the treatment of tuberculosis. The estimates made in House Document 481 provided for the construction, among other institutions, of nineteen hospitals for tuberculosis, with an aggregate capacity of 9,330 beds, at an approximate cost of $32,500,000. This was for tuberculosis hospitals alone. The plan contemplated the construction of permanent institutions located near the centers of population to be served. It

TABLE 1.—MORTALITY FROM TUBERCULOSIS IN THE UNITED STATES, 1915 AND 1920*

Age Period (Years)	Death Rate per 100,000 Males		Death Rate per 100,000 Females		Per Cent. Decrease in Mortality in 1920 Over 1915	
	1915	1920	1915	1920	Males	Females
All forms:						
All ages.....	136.1	117.2	124.4	107.8	24.9	13.3
Under 5.....	84.5	62.5	77.2	53.9	26.2	30.2
5- 9.....	22.6	18.6	22.9	18.7	17.7	18.3
10-19.....	40.6	39.3	76.1	68.9	20.8	9.5
20-29.....	186.3	134.5	184.3	172.2	27.8	6.6
30-39.....	240.7	173.0	193.1	153.2	28.1	16.3
40-49.....	263.9	189.0	152.4	125.6	28.4	17.6
50-59.....	232.9	168.2	134.1	119.3	21.6	11.0
60-69.....	248.4	216.6	158.7	138.7	12.8	12.6
70 and over..	230.2	192.5	193.4	162.8	12.1	15.8
Pulmonary tuberculosis:						
All ages.....	130.0	102.9	107.5	94.1	24.3	12.5
Under 5.....	25.8	21.2	25.7	18.2	17.8	29.2
5- 9.....	7.9	7.0	9.9	8.9	11.4	10.1
10-19.....	40.3	31.6	66.8	60.2	21.6	9.9
20-29.....	171.2	124.6	171.8	160.8	27.2	6.4
30-39.....	225.1	162.6	169.9	143.2	27.8	15.7
40-49.....	245.1	177.1	140.2	113.9	27.7	18.7
50-59.....	234.1	184.1	130.4	106.9	21.4	11.2
60-69.....	229.1	199.5	141.7	125.2	11.8	11.6
70 and over..	196.3	177.8	173.9	141.5	9.4	18.6

* Specific death rates per hundred thousand for males and females compared for 1915 and 1920 in twenty-four registration states, with percentages of decrease; on revised intercensal population estimates for July 1, 1915, and July 1, 1920, but using the 1915 sex and age distribution. The twenty-four states are those constituting the death registration area in 1915. Acknowledgments are made to Dr. W. H. Davis, Chief Statistician for Vital Statistics, Bureau of the Census, for the use of mortality data from original tabulation sheets.

visioned ample grounds, with lawns and trees, and restful environments in salubrious but not isolated places. Unfortunately, however, the treatment of tuberculosis became associated in its early history with the tent, the shack, the lean-to, with life in the open under primitive conditions. The early advice, "Go West, and rough it," was recalled. It was necessary to explain again and again that a tuberculous patient needs highly specialized care, calling for modern hospital facilities. It was necessary for this conviction to find place gradually, and for public sentiment to lead the way to the necessary appropriations.

As an evidence of the difficulties encountered at one critical period, it may be mentioned that on Dec. 24, 1919, the President approved the amendment to the War Risk Insurance Act, which increased the allowance for total temporary disability from $30 to $80 a month. On the same day, in anticipation of an increased number of claimants, the Public Health Service solicited the assistance of the American Legion to find additional hospital accommodations for tuberculous patients, believing that the criticism which the government was at that time facing might be in part ameliorated or its cause mitigated by concerted effort of the comrades of those needing treatment, to find hospitals suitable for their care. The Legion, in response, sent out requests from its headquarters to posts in all parts of the United States, and its members cooperated with our field officers to the desired end. A glance at the chart will show the extent to which contract hospitals were utilized in this very trying period. We are all familiar with the

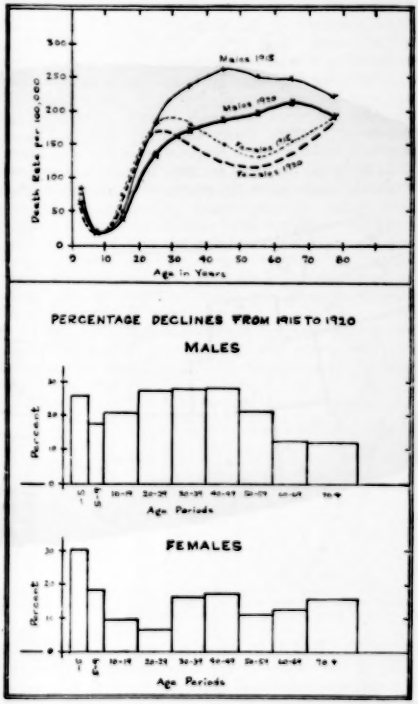


Fig. 2.—Specific death rates for all forms of tuberculosis in twenty-four registration states compared for 1915 and 1920.

criticisms which arose concerning their use. I have no apologies to make. The institutions were representative of the medical care prevailing in the respective communities at that time. Some of the institutions were excellent. Others were unsuitable, and these were abandoned as rapidly as their unsatisfactory condition was determined by the district inspectors detailed for the duty. Whether it would have been better for the federal government to arrange with state sanatoriums and those operated by other political units for the care of all tuberculous patients in this manner is open to question. The plan had many advocates among members of the National Tuberculosis Association. A plan whereby such hospitals might have been enlarged by federal funds for tuberculous veterans was foredoomed to failure because of the distaste evidenced on every

hand to the admission of veterans to any hospital which cared for free patients, or, according to the vernacular, "charity patients." Objections were made to the use of state sanatoriums, county sanatoriums, and such excellent institutions as Oak Forest in Chicago, Seaview Hospital in New York City, and the Branch Hospital in Cincinnati. There appeared, therefore, no choice but to proceed with the development of temporary hospitals for which some funds were provided but which, according to the law, could not be used for permanent construction.

The character of the temporary army hospitals of the cantonment type is too well known to merit a description. The widely separated, one story wards, the connecting corridors with numerous inclines, the numerous heating units, the fire risks, the difficulty of supplying hot food, are well known. The sagging foundations, warped floors and leaky roofs of these temporary buildings were eloquent allies at a time when it was necessary to plead for new hospitals. Some of the attacks made upon the government, notably in the

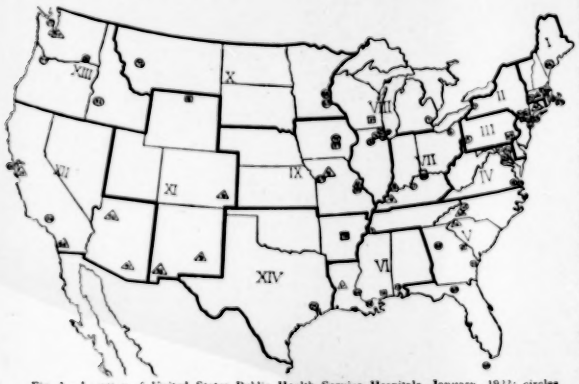


Fig. 3.—Location of United States Public Health Service Hospitals, January, 1922: circles indicate general hospitals; triangles, tuberculosis hospitals; squares, neuropsychiatric hospitals, the numbers being definitely located in Table 3.

case of the Fox Hills Hospital, were, possibly, not wholly devoid of a well-meant but ill-advised effort to force the appropriation of necessary funds to build permanent institutions.

The tuberculosis hospitals taken over from the Army, in addition to those at Markleton, Pa., and Deming, N. M., which were abandoned as unsatisfactory as soon as more suitable hospitals had been obtained, were:

No. 24, Palo Alto, Calif., 650 beds.
No. 26, Greenville, S. C., 700 beds.
No. 27, Alexandria, La., 600 beds.
No. 41, New Haven, Conn., 500 beds.
No. 50, Prescott, Ariz., 765 beds.
No. 55, Fort Bayard, N. M., 1,120 beds.
No. 60, Oteen, N. C., 1,100 beds.
No. 64, Camp Kearney, Calif., 550 beds.

To supplement these, a temporary hospital of 200 beds, intended chiefly for winter use, was established at Tucson, Ariz., at Pastime Park, cottages built from salvaged lumber supplementing the existing buildings. The abandoned Indian School at Tacoma, Wash., was also converted into a temporary hospital of 278 beds.

One of the difficulties in operating hospitals of this group was the lack of quarters for personnel. The Public Health Service has a corps of commissioned officers, but lacks an enlisted personnel. Its employees are all civilians who may leave at will and whose contentment is often conditioned on the presence of their families, of schools, social advantages, and other refinements of living not demanded or expected under military conditions. From the patients' point of view it must also be admitted that the gloomy outlook afforded by the war time buildings, now four years old, is depressing.

From the beginning of the work by the Public Health Service, the hospitalization and the transfer of patients was, so far as possible, decentralized. A disabled soldier coming under observation at any point in the field and found to be in need of hospital care was immediately offered it, if not in one operated by the government, then in the best contract hospital available. According to a custom which has prevailed in the Public Health Service for more than a hundred years, tuberculous patients are routinely admitted as a temporary measure to any of its general medical and surgical hospitals. The tuberculosis wards in our hospitals in Boston, New York, Baltimore, Chicago and other large cities, which were important clearing stations, often contained several hundred patients each. The tuberculous patients at Fox Hills, indeed, sometimes outnumbered all others. The resolution which the American Medical Association adopted at the Boston session last year, advocating this practice for civil hospitals, has served to disarm unjust criticism and to strengthen the government in a useful practice. Your action, therefore, wisely taken in the general interests of public health everywhere, has served the government in a trying administrative problem.

The demand for climatic change was another heritage from an earlier generation. Tuberculous patients and their friends demanded a transfer to special climates from northern, southern, eastern, western and central portions of the United States. The spirit of restlessness engendered by the war was manifest. As a further evidence of this, a popular report is current that 25,000 tuberculous ex-soldiers are found to have migrated to Colorado alone, only 2 per cent. of the hospital patients coming under observation in that state being natives of Colorado. It was necessary to refuse many unwise requests for the removal of tuberculous patients, unsuited by reasons of physical condition, from hospitals where they were under treatment to other hospitals in the arid Southwest. So far as I am aware, however, there are no instances in which a sick man in any part of the United States was not provided with or at least offered hospital care, of the standard prevailing in that community, without more than a few days' delay. The most insistent demands were made for the transfer of terminal cases. "Give this dying man a chance" was a frequent expression typical of the character of requests daily received. It was exceedingly difficult and sometimes futile to attempt to explain

that the importance thus attributed to climatic influence is out of harmony with modern scientific thought, nor was the problem rendered easier by the fact that large numbers of reputable physicians throughout the country appeared to entertain views long since believed obsolete.

The hospitals devoted to the care of veterans were manned almost exclusively by personnel from the military and naval forces. Medical officers, nurses, reconstruction aides, dietitians and laboratory technicians were almost without exception with military experience, many of them having served overseas. All, therefore, were well prepared to sympathize fully with the needs of their patients. The American Legion is well represented in membership among both patients and personnel, and at some of the hospitals the local post constitutes the largest in the community, and sometimes the largest in the state.

It need cause no surprise that special training in tuberculosis for officers was necessary. The lack of adequate instruction in this specialty in most medical schools is well known, while the exclusion of tuberculous patients from general hospitals, a still all too common custom, and the practice of sending tuberculous patients "away" have combined to alienate the average physician from a knowledge of tuberculosis. The excellent Army schools in tuberculosis which were

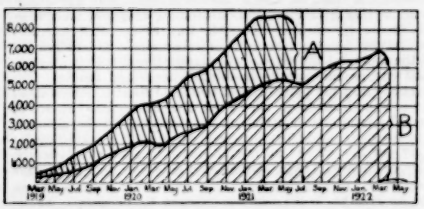


Fig. 4.—Hospital care of tuberculous veterans of the World War, U. S. Public Health Service, March, 1919, to June, 1922; patients in army, navy and soldiers' home hospitals not included. *A*, contract and other institutions; responsibility and control transferred to the U. S. Veterans' Bureau, June, 1921. *B*, Public Health Service hospitals; administration of veterans' hospitals transferred to U. S. Veterans' Bureau by executive order, April 29, 1922.

conducted under the auspices of Col. George E. Bushnell, Retired, had trained a considerable number of Army medical officers, some of whom continued on duty with the Public Health Service. With these and a few other skilled men as a nucleus, the training of a sufficient number of medical officers was undertaken to provide proper care for patients in hospitals. A summer school was conducted at Oteen, and numerous short courses in diagnosis held at various places, every tuberculosis hospital being required to give its medical personnel a prescribed course in training which, during the last three years, has naturally been applied to a considerable number of medical officers stationed therein or assigned for the purpose. Dr. Palmer, who, together with Dr. Boswell, has consented to discuss my subject, is one of the five experts who were engaged to visit our tuberculosis hospitals to assist in establishing a suitable standard of treatment and to strengthen weak points. Since he visited more hospitals and visited them oftener than the others, he is perhaps better qualified than any other person to tell impartially, just as he told me in his official reports, the facts about the hospitals as he found them.

It is not possible to tabulate the tuberculosis patients with respect to the stage of disease in which they were admitted, these figures not being available at the present time. Many were admitted with doubtful diagnosis, claiming compensation for and giving a history of symptoms which indicated tuberculosis. Some of these had been exposed to war gases or were convalescent from epidemic pneumonia. In all, approximately 65,000 veterans were admitted to hospitals, including

TABLE 2.—HOSPITAL ACTIVITIES OF PUBLIC HEALTH SERVICE

Veterans admitted to hospital	964,009
Hospital relief days	14,297,500
Outpatient (dispensary) treatments	2,642,200
Physical examinations	1,459,260

Note—The normal hospital operations of the Public Health Service, in providing relief for merchant seamen and its other beneficiaries in the twenty-five marine hospitals still remaining, amounted last year (one year only) to the following:

Old line patients admitted to hospital	44,756
Hospital relief days	1,121,171
Physical examination	79,759

both government and civil institutions, up to May 1 of this year. It early become necessary to differentiate between patients having tuberculosis for which they required treatment and those with healed or quiescent tuberculosis which did not require hospital care. Numbers of patients were discharged within a few weeks after admission, a board of properly qualified medical officers having determined that they were nontuberculous, in a clinical sense.

While final statistics have not been published, the general impression prevails that war gases were not an important cause of clinical tuberculosis. In this

TABLE 3.—LOCATION OF UNITED STATES PUBLIC HEALTH SERVICE HOSPITALS

No.	Location	No.	Location
2	Boston	49	Philadelphia
3	Buffalo	50	Prescott, Ariz.
5	Chicago	51	Tucson, Ariz.
6	Cleveland	52	Boise, Idaho
7	Detroit	53	Dwight, Ill.
8	Evansville, Ind.	54	Arrowhead Springs, Calif.
9	Fort Stanton, N. M.	55	Fort Bayard, N. M.
10	Key West, Fla.	56	Baltimore
11	Louisville, Ky.	57	Knoxville, Iowa
12	Memphis, Tenn.	59	Tacoma, Wash.
13	Mobile, Ala.	60	Oteen, N. C.
14	New Orleans	61	Staten Island, N. Y.
15	Pittsburgh	62	Augusta, Ga.
16	Portland, Me.	63	Lake City, Fla.
17	Port Townsend, Wash.	64	Camp Kearney, Calif.
18	St. Louis	65	St. Paul
19	San Francisco	66	Carville, La.
20	Savannah, Ga.	67	Kansas City, Mo.
21	Stapleton, N. Y.	68	Minneapolis
22	Vineyard Haven, Mass.	69	Fort Thomas, Ky
24	Palo Alto, Calif.	70	New York
25	Houston, Texas	71	Sterling Junction, Mass.
26	Greenville, S. C.	72	Helena, Mont.
27	Alexandria, La.	73	Chicago
29	Norfolk, Va.	74	Gulfport, Miss.
30	Chicago	75	Colfax, Iowa
32	Washington, D. C.	76	Maywood, Ill.
34	East Norfolk, Mass.	77	Portland, Ore.
35	St. Louis	78	North Little Rock, Ark.
36	Boston	*	Sheridan, Wyo.
37	Waukesha, Wis.	*	Dawson Springs, Ky.
38	New York	*	Walla Walla, Wash.
41	New Haven, Conn.	*	Excelsior Springs, Mo.
42	Perryville, Md.	*	Las Animas, Colo.
43	Ellis Island, N. Y.	*	(Bronx) New York
44	West Roxbury, Mass.	*	Norfolk, Va.
45	Biltmore, N. C.	*	Rutland, Mass.
48	Atlanta, Ga.		

* The asterisks and the numbers are reproduced on the map (Fig. 3).

connection, the following observation made by the Surgeon General of the Army in a recent report is pertinent: "In the year 1918 there were one and one-half times as many cases of tuberculosis per thousand among all troops in France as there were among those gassed, and in 1919 there were more than one and three-fourths times as many tuberculosis cases per thou-

sand among all troops as there were among the gassed troops."

The mental attitude of patients is indicated in some measure by the fact that out of 9,200 patients discharged from service hospitals between July 1, 1921, and May 1, 1922, 3,132, or more than one third, left against advice and without permission, treatment not having been completed. Those discharged for disciplinary reasons during the same period numbered 189. Many of these patients, presumably, sought readmission to other hospitals in accordance with the spirit of unrest which still prevails, although to a less degree than formerly, among ex-service men. The frequency of departures from the hospital against medical advice has been ascribed in part by experienced hospital executives to the custom whereby the Veterans' Bureau provides transportataion home for those so departing for the first time. Homesick men, at some distance from their friends, and finding sanatorium regimen irksome, are tempted to take advantage of this opportunity to return to their families. Men also who have at their own expense unwisely sought climatic treatment at distant places may enter the nearest government hospital, even for the express purpose of claiming transportation home. It is somewhat significant that the small temporary hospital at Tucson, Ariz., with a capacity of less than 300 beds, discharged 488 against advice between March 15, 1920, and April 23, 1922, which is more than half of its total discharges during that period. This hospital is one to which, with few exceptions, no transfers are made by the government, as it is merely an emergency hospital for ex-service men found in Tucson in need of medical care.

Special treatments, including induced pneumothorax, heliotherapy, both natural and artificial, occupational therapy, including physiotherapy, and vocational training as applied therapeutic exercise, were encouraged in all the tuberculosis hospitals. Some of the best results in tuberculous laryngitis were obtained at hospitals in the arid Southwest with sunlight and silence. Some research work related to the presence of small pneumothorax as a common but hitherto unrecognized accompaniment of active pulmonary tuberculosis was carried out at New Haven by Surgeons Barlow and Thompson, the results of which will shortly be published as a bulletin of the Hygienic Laboratory. The number of cases of bone and joint tuberculosis coming under observation has been rather surprising, approximately 3 per cent. of tuberculous patients admitted to hospital having nonpulmonary disease. Of these, approximately two thirds had involvement of the bones and joints.

Remembering that approximately one third of all veteran hospital patients are the tuberculous, an idea of the operations relating to this class may be obtained from the summary of the total hospital activities of the Public Health Service during the three years since the work was undertaken, given in Table 2.

The medical work which the Public Health Service was called on to perform for the Bureau of War Risk Insurance and its successor, the U. S. Veterans' Bureau, is now history. The field organization, including the fourteen district supervisors' offices and their subagencies reaching practically into every county of the United States, was turned over in June, 1921. The control of contract hospitals was relinquished also at that time. The Veterans' Bureau, having further perfected its organization, finally felt itself ready to assume the administration of the veterans' hospitals, which were accordingly turned over to Director Forbes by executive order, May 29, 1922. This transfer consisted of fifty-seven hospitals, with 17,500 beds, 13,057 patients (of whom 5,271 were tuberculous), and a personnel of 11,347, including 925 physicians and dentists, 1,425 nurses, 425 reconstruction aides, and 110 dietitians. I take this occasion to pay public tribute, before a body which has ever honored fidelity, to the professional men and women who, having been identified with the organization and operation of these hospitals for many months during very trying periods, were transferred from the Public Health Service to the Veterans' Bureau for continued duty of the same character. Their loyalty has been instant and unvarying, their patience untiring, their zeal unflagging, and their devotion unfailing in the cause of the disabled veteran and the government, whose obligations they strive to fulfil.

ABSTRACT OF DISCUSSION

DR. HENRY BOSWELL, Sanatorium, Miss: There are a number of tuberculous soldiers in this country, for the ex-soldiers are breaking down very rapidly. I should like to emphasize that in the state of Mississippi, where we examine all soldiers and civilians, we are not having any more ex-soldiers with tuberculosis than we find in the civilians, of like age group. With reference to the isolation of these men and their care, we should try in every possible way to establish scientific institutions for the treatment of tuberculosis and to get out of the minds of the civilian population the idea that tuberculosis can be successfully handled in tents and shacks. One certainly does not get results in tents and shacks. About three years ago I made a survey of the institutions of North America in order to arrive at some solution of the problem. I found that like institutions well built with scientific equipment got like results no matter where located, except in the state of Maine. There, perhaps, the difference was due to the long period of cold weather. The only other thing I should like to mention is the constant demand by the people on the medical profession to change soldiers from one place to another. I remember one case which Dr. Cumming's paper brought to mind, in which we had considerable trouble in getting the patient's relatives to leave him with us. He had an acute miliary tuberculosis. His people succeeded in getting him transferred, and he died on the train somewhere in Colorado before he reached Fort Bayard.

DR. H. A. PATTISON, New York: Through the courtesy of Dr. Cumming and the heads of other executive departments of the government, it has been the great opportunity and privilege of the National Tuberculosis Association to cooperate with the government in developing facilities for the care and treatment of tuberculous ex-service men. As supervisor of the medical service of the national association, it has been my lot to do a considerable part of the work. I had the opportunity to look into every corner of many of the Public Health Service sanatoriums, and of seeing how the Public Health Service found itself when, without adequate equipment, this great problem was forced on it. Without adequate legislation, physical equipment or sufficient appropriations, thousands of sick men were thrown on it suddenly. I should like to pay sincere tribute to the executive departments in Washington and to our medical and nursing friends in the hospitals for their devoted work in carrying on under great difficulties. Before the congressional committee, headed by Senator Walsh, I answered the question as to the reasons for these serious difficulties by saying that I considered them due to definitive and restrictive legislation. The committee agreed with me, and the country was assured that very shortly Congress would dispose of that by legislation, making it possible to meet the situation. As an example of the difficulty in the cantonment hospitals, take Palo Alto, Calif. The California laws do not permit of the barring or screening of any windows even in one-story frame buildings. It is therefore impossible to control the neuropsychiatric patients,

who have ready access to narcotic and liquor pedlers when their compensation checks arrive. On the other hand, at Boise, Idaho, where there is better supervision, we have one of the best equipped and managed hospitals of this country in charge of the Public Health Service. At Greenville, with an old broken-down cantonment base hospital and the buildings painted in every conceivable color, there was splendid morale and splendid work being done under the most adverse conditions. The President recently transferred from the Public Health Service to the Veterans' Bureau about thirty-nine hospitals. The Veterans' Bureau has not had the hospital experience of the Public Health Service. Only time will tell whether the Veterans' Bureau will go on with the splendid work the Public Health Service has been conducting, or whether we shall have just domiciliary care rather than real treatment.

DR. J. J. SINGER, St. Louis: Dr. Cumming brought out some very important points in relation to tuberculosis surveys of the general public. In one of his charts he states that the adjusting of conditions is reflected in the mortality of tuberculosis. This was very evident during the war period, at which time the death rate seemed to have diminished, though in the last few years it has somewhat increased. The Public Health Service has brought out, to my mind at least, and answers the question of whether tuberculosis is a medical disease or whether it is a public condition, a medical problem or a social problem. I have seen a large number of cases diagnosed as tuberculosis and the patients given a pension of from $30 to $80 a month. Those are the patients who have been doing well. Those are the patients who have not gone out to work, but have stayed at home or gone to private hospitals or physicians. The strain of providing for themselves has been removed. If the Public Health Service has done nothing else but this, its work is worth while. The second point that the Public Health Service has brought out is the training of physicians in tuberculosis diagnosis. To those working in tuberculosis it is generally recognized that early recognition must be done by the general practitioner. The Public Health Service has turned out innumerable men all over the country who are trained in a tuberculosis clinic, and in that way they serve the cause.

DR. H. S. CUMMING, Washington, D. C.: We have been trying to educate the average physician to the work in tuberculosis by establishing a school at Oteen, N. C. I hope that the physicians will continue to be interested in one of the greatest public health measures.

THE ANESTHETIC PROPERTIES OF PURE ETHER *

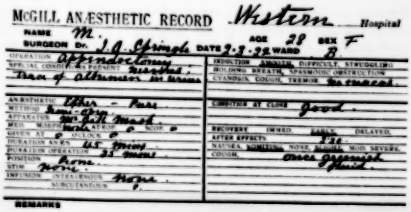
RAYMOND L. STEHLE, M.A., PH.D.
AND
WESLEY BOURNE, M.D., C.M.
MONTREAL

At least twice within the last few years it has been reported that pure ethyl ether is not an anesthetic, and that the physiologic action ordinarily attributed to this compound is due to impurities contained in the commercial material. According to Cotton,[1] carbon dioxid may be the active agent in some ethers; but this investigator reported that he had obtained the best results by the use of ether containing ethylene and possibly another gas of unrecognized nature. According to Wallis and Hewer,[2] ketones are the most important impurities, though they state that the anesthetic action of ether is enhanced by treating it with carbon dioxid and ethylene. The lack of chemical details in the papers of Cotton and of Wallis and Hewer is unsatisfactory.

* From the Laboratory of Pharmacology, McGill University.
*The expenses of this investigation were borne in part by the James Cooper Endowment.

1. Cotton, J. H.: Canadian M. A. J. 7:769 (Sept.) 1917.
2. Wallis, R. L. M., and Hewer, C. L.: Lancet 1:1173 (June 4) 1921.

The foregoing statements appeared to warrant further investigation. All commercial ether today is manufactured by the Williamson sulphuric acid-alcohol process. The reaction is such that side reactions may occur, the products of which may contaminate the main product and therefore lend some degree of plausibility to the claims mentioned. A different method of preparing ether, therefore, was adopted. Instead of the sulphuric acid process, a general reaction well known to


McGILL ANÆSTHETIC RECORD — Western Hospital

NAME M. — AGE 28 — SEX F — DATE 2-3-22 — WARD B

SURGEON Dr. J. G. Stringle — ANÆSTHETIST —

OPERATION Appendectomy — ANÆSTHETIC Ether — Pure — APPARATUS Am. Gas Mask — MASK Medicated — GIVEN AT 9:30 A.M. — DURATION ANÆS. 45 mins — DURATION OPERATION 35 mins — POSITION Horiz. — STOP — INFUSION INTRAVENOUS Normal SUBCUTANEOUS —

CONDITION AT CLOSE Good — RECOVERY IMMED. — AFTER EFFECTS Nil — NAUSEA, VOMITING: NONE — COUGH: Once Expunged Good —

REMARKS

Fig. 1.—Details of Case 2.

organic chemists was employed. It consisted in bringing sodium ethylate and ethyl iodid together in alcoholic solution, whereupon the following reaction occurs:

$$C_2H_5ONa + C_2H_5I = C_2H_5OC_2H_5 + NaI$$

The sodium iodid precipitates and the ether is separated from the alcohol by fractional distillation. The possibility of side reactions occurring is not obvious, and the product may be assumed to be quite pure. *A priori*, the possibility of contamination with aldehyds and ketones is practically eliminated because, in preparing the sodium ethylate, the hydrogen generated

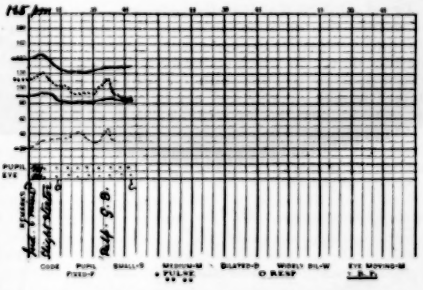


Fig. 2 (back of card illustrated in Figure 1).—Curves of blood pressure, heart rate and rate of respiration.

when the metal was dissolved in the alcohol would have reduced any aldehyds and ketones present to alcohols. In order to serve as a check, however, the ether obtained was analyzed quantitatively for ethylene, while qualitative tests for aldehyds and ketones were performed.

For the ethylene test, 2 c.c. of the ether in question was dissolved in tetrachlormethane, and 10 c.c. of an approximately third-normal bromin solution was added. The mixture, in a stoppered bottle, was placed in the dark for eighteen hours to give opportunity for any ethylene present to absorb bromin. At the end of

the reaction, the residual bromin was determined by titrating the mixture with a standard thiosulphate solution. Assuming that all of the bromin not recovered was taken up by ethylene, the maximum amount which could have been present in the ether was 0.04 per cent. It is likely that the amount was smaller than this, since some or all of the bromin may not have been taken up by ethylene, but may have substituted for hydrogen in the ether. Schiff's test for aldehyds (restoration of red color to a fuchsin solution decolorized with sulphur dioxid) was negative, as was the nitroprussid test for acetone and for methyl ketones in general. Other ketones than the methyl ketones do not give the nitroprussid reaction, but all of them are excluded because of their high boiling points (the simplest, diethyl ketone, boils at 103 C). They would have been eliminated in the fractionation process.

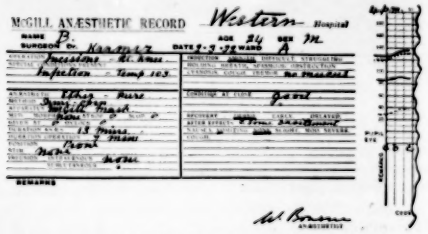

McGILL ANÆSTHETIC RECORD Western Hospital

Fig. 3.—Findings in Case 3.

A small amount of ethyl iodid was present in the ether. This was evident after exposing the product to bright sunlight for a few days, which caused it to take on a light amber color because of the liberation of iodin.

Being satisfied that the ether prepared was suitable to decide the question at issue, we subjected its anesthetic properties to experiment. An albino rat was the first object on which its action was tried. When placed in a jar together with 1 c.c. of the ether, the animal became anesthetized almost immediately, and on removal from the jar recovered quite as fast as it had succumbed. The remainder of the small quantity which was obtained in the preliminary trying out of the method of preparation was administered to a female

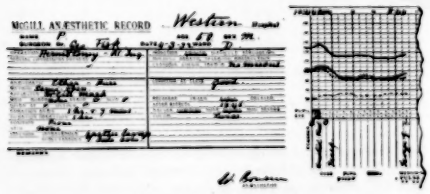

McGILL ANÆSTHETIC RECORD Western Hospital

Fig. 4.—Details of Case 4.

patient weighing 245 pounds (111 kg.) and being operated on for a large ventral hernia. Induction took place in four minutes, that is, anesthesia was brought to the first stratum of the third stage. This depth was maintained there ten minutes when, as we had no more of the material, a change was made to one of the commercial ethers.

A larger quantity of the ether was then prepared (about 1½ pounds), and this was used in five additional cases which were chosen miscellaneously. In none of them was there any preliminary alkaloidal medication, such as the administration of morphin and atropin. The McGill modification of the Ferguson

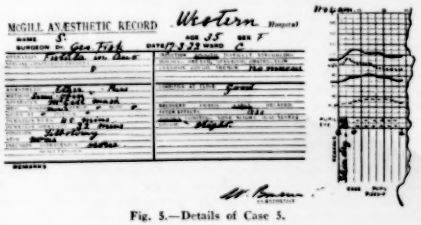

McGILL ANÆSTHETIC RECORD Western Hospital

Fig. 5.—Details of Case 5.

mask was used. All five patients expressed comfort during the induction period, which lasted from four to six minutes, and which was marked (except for a quite negligible amount of vomiting of food in Case 4 just before the start of the operation) by the absence of any signs of irritation, such as lacrimation, salivation, mucous formation, holding of the breath, coughing or struggling. The whole period of anesthesia was uneventful in each instance and entirely satisfactory to the surgeon conducting the operation. Recovery was immediate or early, and nausea and vomiting were minimal, even though gastric lavage was done only in the case of Patient 4. Worthy of mention is Case 6, in which good analgesia was obtained intermittently for each pain over a period of forty minutes of normal labor.

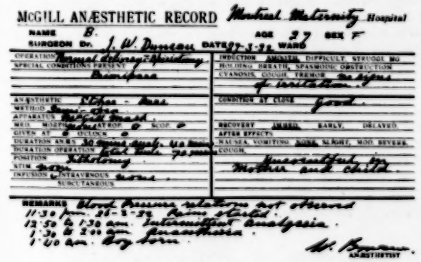

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Fig. 6.—Details of Case 6. The blood pressure relations were not observed.

CONCLUSIONS

Pure ether, made by a clean-cut chemical reaction which excludes almost completely any contamination with substances which have been claimed to be the real anesthetic agents of ordinary ether, possesses to the highest degree the anesthetic properties which have usually been attributed to it.

Recent Literature on Cancer of the Eye.—M. Manheimer reviews the literature of the last ten years on malignant tumors of the eye in the *Zeitschrift für Krebsforschung* **18**:1, 1921, a total of 586 bibliographic references with titles. The tumors are classified under twenty-one headings according to the location. The list contains several congenital orbital sarcomas, one bilateral.

MASTOIDITIS HYPERPLASTICA SEROSA*

J. W. JERVEY, M.D.
GREENVILLE, S. C.

There exists a certain pathologic condition of the mastoid which, up to this time, has not been recognized. The mastoiditis of the textbooks and of current medical literature of the world, for thirty years past at least, is an infective process, always accompanied by pus formation and, inferentially, of some specific bacillary origin. I believe that there is another and quite distinct type of mastoid disease.

It is well known that there exists a "serous labyrinthitis"; why not a "ser ous mastoiditis?" The existence, not rare, of a "hyperplastic sinusitis" is an accepted fact; why not a "hyperplastic mastoiditis?"

Not to go into a prolonged discussion of the latter type, for instance, hyperplastic ethmoiditis, it is enough to say that more might be known of its etiology and pathology. It may exist in association with an interstitial and intracellular serous exudate, or it may not. In the mastoid structure, the two types can and do exist simultaneously.

It has been shown that in hyperplastic sinusitis there is a definite osteoporosis (Skillern). In the type of mastoiditis that I am reporting, this condition is macroscopically evident. The pain and congestion present in either case are doubtless due both to the bone cell spread and the pressure of the serous exudate. The functional disturbances may be attributed to the same cause.

Briefly, we may be confronted with the following syndrome, in whole or in part: impairment of hearing, gradual or recent; vague pains in and about the ear; parietal headache; mild nervous unbalance, and a sense of "bubbling" deep in the ear at intervals, which is quite different from the "popping" and "crackling," so often complained of when mucus is present in the eustachian tubes.

On examination, we find some or all of the following manifestations: mastoid tenderness on deep pressure; lack of temperature changes; a varying degree of redness and thickening of a crescentic area of the posterosuperior margin of the membrana tympani, perhaps accompanied by more or less sagging of the contiguous canal wall; excessive tenderness in the roof of the external canal; occasionally, drops of serous exudate seen in the middle ear through the transparent membrana tympani; lack of evidence of previous middle ear disease; a markedly reduced sense of hearing; a negative Rinné reaction; a normal blood count; lack of evidence of existing infection, and patent eustachian tubes. The discomfort and the loss of hearing (say to the point of hearing a watch on contact) demand relief. The patient's vocation (such as stenography or teaching) may be seriously interfered with. What is to be done?

In such cases, I believe roentgenology is our safest diagnostic guide. The roentgenogram will show marked thickening and blurring, but unbroken continuity, of the mastoid cell walls, and the bony wall of the lateral sinus, with slight haziness of the whole affected area. This picture can with a little difficulty be distinguished from the cloudiness and the broken down cell walls of a purulent infection, as well as from the picture of a partially sclerotic process. Curiously enough, Law's masterwork on roentgenology of the mastoids fails to note this type of pathology.

On operation, the findings are characteristic and unmistakable. The mastoid cells are filled with clear yellowish serum; the cell walls are noticeably thickened and evidence extensive osteoporosis; the antrum may be filled with the same serous exudate; smears and cultures of this exudate are microscopically negative.

It has been suggested to me that if the mastoid cells and antrum were filled with fluid, the middle ear also will necessarily be filled. This, of course, is not true. It is a simple physical fact that the mastoid and antrum, constituting a cavity closed except at its tympanic opening, would not discharge any liquid contents into the lower lying cavity until supersecretion forced the contents out, drop by drop. Hence, the phenomena observed and reported above. The drops which are forced out cause the "bubbling" hearing sensations, and these drops may be either absorbed in the middle ear as fast as deposited there, or milked out through the eustachian tube in the course of its physiologic functioning.

There is little or no reaction from operation; the wound may safely be closed; recovery is uneventful, and hearing is restored in whole or in part.

Macroscopically, the pathologic condition appears to be of a hyperplastic, serous nature; hence the title of this article. I regret that microscopic examination of the exenterated material cannot be reported. I have observed three or four cases of this character (and have one under observation, not operated on at this writing), but not until the last operation did I realize that the condition was one hitherto unrecognized, or at least undescribed in recent literature.

As to the etiology, at this time we may conveniently take refuge behind a word that may cover much territory and a multitude of sins—and say that it is cryptogenic. But we may properly theorize, briefly. I have said that the disease presents no evidence of infection. But this fact does not preclude the possibility of the deposition of long previous infection, with an exhibition of ultimate effects—the infection and its ultimata being worn to a state of unrecognizable attenuation by time and the old fashioned *vis resistentiae naturae*. I have heard earnest students of pathology make the statement that they could not conceive of hyperplastic tissue degeneration without the existence of previous infection, whether exogenous or hematogenous, as related to the affected part. I must admit, too, that I have more than once seen the two types (serous hyperplastic and infective) existent at the same time in one mastoid, viz: the subcortical cells showing the serous type, and the cells immediately adjoining the antrum, and the antrum itself, filled with pus. Of course, many of you must have observed these things, but they seem to have hitherto escaped publication.

In discussing the mastoid changes following chronic middle ear infection, so great an observer and authority as Politzer[1] speaks of proliferation of cell lining membrane, eburnation of process, granular osteitis and caries, cholesteatoma, hyperostosis and osteosclerosis; but makes no mention of serous exudate, tissue hyperplasia and osteoporosis such as we have here under consideration. This fact necessarily lends weight to the tentative hypothesis that the latter conditions are not the sequelae of chronic infection, while

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Politzer: Textbook of Diseases of the Ear, translated by Ballin and Heller, 1902.

evidently, and of course, they are certainly not manifestations of an acute sepsis.

While one cannot deny the indubitable possibility of previous infection in these hyperplastic cases, I like to think of them as something new, something different, and I should like to suggest that, for the present at least, and until more is learned about them, they be classed etiologically as of the so-called "deficiency diseases," meaning that general class of morbid metabolistic variations produced by dietary insufficiency, perhaps by some lack of vitamin ingestion, such as has been suggested by Kauffman [2] as the possible causation of hyperplastic ethmoiditis and otosclerosis.

The prognosis seems to be good. The simple mastoid operation, thoroughly done, has resulted, and theoretically should result, in clearing up or at least greatly ameliorating the symptoms. And, in this day and time, one would hardly say that a simple mastoid exenteration, in reasonably skilful hands, could be regarded as a very formidable procedure.

Following is a brief abstract of the salient points of a case illustrating the foregoing observations.

REPORT OF CASE

Miss L. H., white, aged 49, stenographer, first seen Jan. 9, 1922, one week before consulting me had had severe pain in the left ear and the left side of the head. This had been more or less continuous. There were occasional "bubbling" sounds in the ear.

Disregarding some slight abnormalities in nose and throat, the left membrana tympani was mildly congested, with special reference to the long handle of the malleus and Shrapnell's membrane. The posterosuperior wall of the canal and the contiguous portion of the membrana were noticeably sagging. There was no visible perforation. There was marked tenderness on deep pressure toward the mastoid tip. On the right, the patient could hear a watch at from 4 to 5 inches (10 to 12.5 cm.) and Rinné's reaction was positive. On the left, the watch was heard on contact, and Rinné's reaction negative. The temperature was 97.8 F., the pulse, 88. Urinalysis revealed a trace of albumin.

January 10: The blood count showed white cells, 7,600; polymorphonuclears, 64 per cent. Roentgenograms revealed the right mastoid sclerotic throughout the large portion, with a large tip cell; the left mastoid showed cells external to the antrum and those in the anterior half of the tip cloudy, with thickening but no breaking down of cell walls. To a less extent, the same conditions were noted over the sinus area, and the bony sinus wall was very much thickened throughout its mastoid course, while its appearance before entering the mastoid process was thin, well marked and distinct.

January 11: The pain continued in the left ear and left side of the head. The sagging of the posterosuperior canal wall was marked. The temperature remained normal. There seemed to be little doubt that there was an inflammatory process going on in the mastoid, but it seemed doubtful that there was any pus present. The hearing was badly affected and this distressed the patient.

Virtually the same observations continued for the ensuing week. January 18, the mastoid was opened and the following observations were recorded: Cortex of average thickness; cells filled with clear, serous, somewhat sticky fluid; cell walls noticeably thickened and showing a marked macroscopic picture of osteoporosis. The antrum was filled with the same clear viscid secretion, with no evidence of disease in the antral lining or walls, and no evidence of pus in the entire field. The smears and culture from the secretion were microscopically negative for bacteria. The wound was entirely closed and healed by first intention.

January 21: The patient was able to hear the watch through the bandage.

January 23: The healing was complete, and dressings were discontinued. The congestion in the deep canal was noticeably less, and the patient was able to hear a watch at 4 inches (10 cm.). She was dismissed and sent home.

January 25: A card, dated January 24, was received from the patient, saying: "I can hear the clock in my room ticking! Gratefully yours."

February 11: The patient felt well, said that hearing was "ever so much better"; and she was back at work. She can now hear a watch at 8 inches (20 cm.). The membrane and canal appeared normal.

COMMENT

This case was so striking that my hitherto hebetudinous mentality began, however weakly, to function, and, in looking over my records, I found at least four other mastoids which had come to operation presenting much the same characteristics. Belated inquiry then, with the assistance of the American Institute of Medicine, led me to the at least tentative finding that this was a type of mastoid disease hitherto unrecognized, or rather unreported in the literature, although evidently of considerable pathologic, and I may say economic importance.

Jervey-Jordan Building.

2. Kauffman, A. B.: Laryngoscope **32**: 50-55 (Jan.) 1922.

ABSTRACT OF DISCUSSION

DR. J. A. STUCKY, Lexington, Ky.: A young woman, aged 19, had all the symptoms described by Dr. Jervey. I had seen her a number of times when she was suffering this intense pain. I sent her to Dr. C. R. Holmes with a note stating that I thought this was a hysterical case. He sent her back with the statement that he did not think it was hysterical, that I had better operate. I did not do so for several weeks afterward. In the meantime, the patient suffered severe pain. There was nothing to indicate the real pathologic condition, but she had all of the symptoms described by the essayist. When I opened the mastoid, I found a normal condition with the exception of serum in the bottom of the lower cells. I closed the wound with blood clot and the woman was entirely relieved. She made a rapid and uneventful recovery. But the strangest thing about this case is what happened six months afterward. She demanded an operation on the other ear. I had never had a patient come to me for a second mastoid operation. I had looked for every focus of infection. I had eliminated toxemia and acidosis. When I opened this mastoid I found the same condition of affairs as in the ear operated on previously. I took a culture from the cells in which I found this exudate, and the pathologist reported it negative. I have seen one other such case. I do not know how to classify them, but I have labeled them "freak mastoids." I regard them as hysterical cases.

DR. ARNOLD B. KAUFFMAN, Chicago: I was very much interested in the suggestion Dr. Jervey made as to the possible etiology of the condition he describes. During the past year, in the clinic of Drs. Beck and Pollock, we studied the possible relationship of dietary deficiencies to various nasal and aural conditions (otosclerosis, hyperplastic ethmoiditis) which were particularly of more or less unknown etiology, and which pathologically showed changes not of an inflammatory nature nor directly due to bacterial invasion. We called attention to the bony changes in the temporal bone in rickets. The presence of osteoid tissue is well marked; the newly formed bony tissue is uncalcified and covered with osteoblasts. We believe, then, that we can assume as a working hypothesis that a similar deficiency acting throughout a different period of life may not produce such a clear cut disorder as in infantile rickets, but certainly may produce bony changes elsewhere.

DR. NORVAL H. PIERCE, Chicago: I am inclined to think that Dr. Jervey's case and Dr. Stucky's are explained best by a peculiarity of the mucous membrane lining the cells of the mastoid, rather than by any infectious micro-

organism, or by deficiency disease, or any other thing that might be suggested. These cases do occur—I have seen them myself—in which there is arrested pneumatization. When we speak of arrested pneumatization, attention is focused on the bone, when, as a matter of fact, the most important factor is the mucous membrane. In all of these cases of arrested pneumatization, which always dates back to the second or third year of life, there is a mucous membrane which is thicker than normal and which is covered by an abnormal kind of epithelium. The thickness of the mucous membrane is due to presence of the myxomatous embryologic tissue which entirely fills up the cavum and antrum during the latter months of fetal life. This arrested pneumatization may be complete or incomplete. There is a dark area within a whitish area which shows the internal auditory canal in the petrous portion of the temporal base, and a rather dark line which indicates the anterior part of the sinus, and between these are cells more or less complete and more or less normally arranged. Normally, the peripheral cells are larger than the central cells. There may be more cells than this; they may run to the tip, but I think you will invariably find in these cases that there is not a completely pneumatized mastoid. When we see this in the roentgenogram, we may rest assured that there is a peculiarity of the mucous membrane, and that peculiarity is that it is thicker, owing to the presence of the embryologic tissue. This type of mucosa has a low degree of resistance and a peculiar reaction to bacterial infection, which produces just such cases as Dr. Jervey has outlined, sometimes with very great pain and yet with no destruction of bone and no expression of pus but of serous exudate. They rarely require operation.

DR. GEORGE E. SHAMBAUGH, Chicago: I am trying to get clearly in mind just what Dr. Jervey considered were indications for operative interference. It apparently was not the fear of a defect in the hearing developing as the result of a persisting discharge through the middle ear, because there has been no evidence of secretion in the middle ear. Was it the revelation of the roentgenogram? A shadow over the mastoid gives no indication that there is the sort of process going on here that requires surgical intervention. Was it discomfort in the region of the mastoid that led him to operate? It is a very common thing, if we take the pains in all cases to look for it, to find distinct evidence of mastoiditis in cases of acute otitis media. It is, however, the unusual case of acute mastoiditis that really calls for operative intervention. A shadow simply means that the pneumatic spaces of the mastoid are filled with a pathologic secretion. This much we can determine by other tests, for example, transillumination, or the presence of tenderness over the process itself may reveal the condition. This is no indication for operative intervention. It is only when there is a persisting discharge for a number of weeks, or when, after several weeks' discharge, the roentgen ray reveals a distinct area of softening that a surgical opening of the mastoid is indicated, except, of course, in those cases in which, because of some complication, sinus thrombosis, unusual high temperature or persisting severe pain, one may be called to operate.

DR. LOUIS K. GUGGENHEIM, St. Louis: I agree with Dr. Shambaugh's argument against a mastoid operation unless there is an absolute indication. In St. Louis, when we read of the number of mastoid operations performed east of the Mississippi, we feel that we are either ultraconservative or behind the times, for we perform but few mastoid operations.

DR. J. W. JERVEY, Greenville, S. C.: Dr. Shambaugh says he does not quite understand what I consider indications for operation. I thought I had quite sufficient indications inasmuch as the patient had a very marked, troublesome and partly incapacitating impairment of hearing. If there was any chance for improvement of hearing, she was certainly entitled to the chance. However, that alone would not have been sufficient indication for operating, but she had a marked deep tenderness in the mastoid area, particularly above the tip; she also had a constant and severe pain, which had been present for at least two weeks. Something had to be done to relieve that. In addition, we had the roentgenograms of the mastoid, which in her case we thought quite distinctive. It certainly showed a condition we had not seen before, the characteristics being thickening of the cell walls and of the lateral sinus wall, which turned out to be an osteoporosis. A leukocyte count was made and a Wassermann test, and smears and a culture were taken, all with negative results, as stated in the paper.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ALBUMIN MILK-HOOS.—Dry Protein Milk.—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains, approximately, protein, 30 Gm.; butter fat, 25 Gm.; milk sugar, 15 Gm.; ash, 4 Gm., and small amounts of free lactic acid.

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For use, the contents of one small package of albumin milk-Hoos (3 ounces) are sprinkled on the surface of 1 quart of warm, previously boiled water, and the mixture is beaten with an egg beater or wire whip. After mixing, the product is poured twice through a fine strainer, the curds being rubbed through with a spoon. Greater dilutions are sometimes prescribed. Carbohydrates, if prescribed, are dissolved in a little warm water and added to the mixture. The finished product contains approximately 3.16 per cent. of protein, 2.41 per cent. of fat, 1.83 per cent. of lactose and 0.41 per cent. of ash.

Louis Hoos, Chicago, distributor. No U. S. patent. U. S. trademark 89033.

Neocinchophen-Abbott (See New and Nonofficial Remedies, 1922, p. 88).

The following dosage form has been accepted:

Neocinchophen-Abbott Tablets, 5 grains.

BENZYL BENZOATE (See New and Nonofficial Remedies, 1922, p. 64).

Benzyl Benzoate-M. C. W.—A brand of benzyl benzoate-N. N. R.

The Mallinckrodt Chemical Works, St. Louis, distributor. No U. S. patent or trademark.

Workmen's Compensation for Inoculation with Plague.—The *Medicina Contemporanea* quotes in full the decision rendered recently, by the Lisbon court that deals with workmen's compensation cases, in the case of an attendant at a hospital morgue. His duties included assisting at necropsies, and he died eight days after having been scratched in the finger during the necropsy of a plague victim. The lesions and bacilli of plague were found in him after death, and the court decreed that a compensation based on the salary the man had been getting should be paid to the widow and two children. The Portuguese government granted a pension to the family of Professor Pestana under similar conditions, his death following contracting of plague from a cadaver. Our exchange queries, "And what about the physicians and nurses who have lost their lives from professionally acquired plague, typhus or pneumonia, during these last two years since the law on workmen's compensation has been in effect?"

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, JULY 29, 1922

SPIROCHETURIA

The path of invasion which micro-organisms follow in the body seems to be understood better at present than are the courses by which they are disseminated and the places of exit which they sometimes find. An organism may grow locally and produce few if any other than local manifestations; again, although confined to a limited focus, it may produce a toxin that is distributed readily through the circulation so as to initiate serious remote effects. In still other cases the micro-organisms invade the lymphatics or the blood stream and thus become widespread. Bacteremia arises in this way. Many factors are known to act against the entrance of bacteria into the body; and it appears that organisms often find it equally difficult to emerge from their hiding places. The elimination of some species with the stools has long been recognized, as in the case of dysentery and cholera. In other instances, such as typhoid and tuberculosis, the responsible bacilli frequently are found in the urine.

The fate of the spirochetes in this respect has only lately come into especial prominence. Since the discovery, in 1915, that Weil's disease is caused by a specific micro-organism, *Spirochaeta icterohaemorrhagiae*, the excretion of the spirochetes by the kidneys has been shown by successful transmission of the disease through inoculations of urine from infected animals and patients. In fact, the micro-organism has since been discovered to occur in many organs and tissues during icterogenic spirochetosis. Warthin[1] of the University of Michigan has demonstrated that the elimination of the organism of syphilis, *Spirochaeta pallida*, may take place under the same conditions and apparently with the same mechanism as described for the spirocheturia of infectious jaundice. There is a more or less generalized spirochetosis in the body, with spirochetemia. In the kidney there occurs a massing of the spirochetes about the convoluted tubules and a passage of the organisms from the vessels and interstitial tissues into the tubules, where they undergo disintegration for the greater part. This destruction of the organisms in the kidneys is more marked in the case of syphilis than in infectious jaundice.

According to Warthin, the elimination of spirochetes through the kidneys, with the production of associated renal lesions, appears to constitute a family characteristic for the entire group of spirochetal infections, so far as the known types of the organisms have been studied carefully. In infectious jaundice, the spirocheturia is a factor of considerable diagnostic value. The Michigan observations are not the first to be made in regard to the spirocheturia of syphilis, but they are probably the most convincing demonstrations of the excretion of *Spirochaeta pallida* through the kidneys in man. Warthin has pointed out that syphilitic spirocheturia occurs in the stage of septicemic syphilis, in both the congenital and the acquired infections. *Spirochaeta pallida*, as is *Spirochaeta icterohaemorrhagiae*, may be excreted in enormous numbers through the convoluted tubules. During such excretion through the kidneys, Warthin concludes, the spirochete of syphilis suffers greater destruction than does the icterogenic parasite, so that fewer spirochetes may reach the urine in syphilis than in infectious jaundice. The demonstration of the occurrence of syphilitic spirocheturia, therefore, is not likely to possess such diagnostic value as that of icterogenic spirocheturia.

1. Warthin, A. S.: The Excretion of Spirochaeta Pallida Through the Kidneys, J. Infect. Dis. **30**: 569 (June) 1922.

THE IMMUNIZATION OF NURSES TO DIPHTHERIA

In the case of diphtheria, the efficacy of modern medicine has been put on trial, so to speak, to a degree perhaps not emphasized equally with respect to any other disease regarding which great advances in our knowledge have been recorded. The bacteria and other elements in the causation of diphtheria have become familiar to both physician and layman. The recognition of the nature of the immunity conferred by an attack from the malady remains among the great discoveries of scientific investigation. The production of immune serums and their gradual refinement are triumphs of the laboratory that have not only challenged admiration but also conferred untold benefits on mankind by curing diphtheria beyond the hopes of an earlier generation. Then came the unexpected finding of the menace of the widely distributed carriers, themselves immune, yet omnipresent dangers to the environment in which they tarry. Finally—for the moment—we may record the application of the Schick or analogous tests to determine the existence of susceptibility or immunity in the individual, coupled with the attempts at immunization by the use of diphtheria toxin-antitoxin mixtures.

To those who have lived through this history of the investigation of the cause and management of diph-

theria, it seems like a long story in which discouragement has always been succeeded by discoveries of great promise. Despite the lowered mortality due directly to the administration of antitoxin, there is still a large incidence of diphtheria to which the intolerant and the pessimist continue to point with ill concealed satisfaction in their challenge of the advantages of modern science. In the larger cities, diphtheria remains endemic, and each year there still is a large morbidity. It has become obvious to students of preventive medicine, therefore, that the next step forward must be in the direction of securing a greater immunity among our population. Since the percentage of positive Schick tests usually given for adults is considerably lower than that found in children, attention has been focused primarily on the latter.

The results of attempts at immunization of children, conducted on a sufficiently large scale to afford convincing statistics and controlled by repeated tests of the degree of success secured, have been decidedly encouraging.[1] Among those persons most intimately exposed to diphtheritic infection are physicians and nurses. It is gratifying to learn that for them, too, there is promise of successful active immunization following the practice of systematic administration of toxin-antitoxin mixtures to those who react to the Schick test. Cooke[2] has reported the outcome of such a program for the susceptible training school nurses on duty in the Contagious Pavilion of the St. Louis Children's Hospital, a group of young women showing an unusually high incidence of susceptibility. There were 58 per cent. of nonimmunes. More than 80 per cent. were immunized by the injections, the Schick test remaining persistently positive after two series of toxin-antitoxin injections in only a small number of the women.

During the three years preceding the immunization, twenty nurses, or 28 per cent. of those on duty in this contagious pavilion, developed diphtheria. In the four years' period after the immunization was instituted, there was a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent. This is a triumph of preventive medicine. If it is thus easy to protect an entire nursing staff from contracting diphtheria, by the use of the Schick test and toxin-antitoxin injections, one must agree with Cooke that this procedure should be carried out in all institutions caring for children.

1. Carey, B. W.: Diphtheria Control, J. A. M. A. **77**: 688 (Aug. 27) 1921. Mulsow, F. W.: Schick Test and Active Immunization with Diphtheria Toxin-Antitoxin, ibid. **77**: 1254 (Oct. 15) 1921. Fleischner, E. C., and Shaw, E. B.: The Management of a Diphtheria Outbreak in a Private School, ibid. **77**: 1714 (Nov. 26) 1921. Bashore, H. B.: Fighting Diphtheria in the Country, ibid. **78**: 188 (Jan. 21) 1922. Cumming, J. G.: Is the Control of Diphtheria Leading to Eradication? ibid. **78**: 630 (March 4) 1922. Meyer, Jacob: Active Immunization with Diphtheria Toxin-Antitoxin, ibid. **78**: 716 (March 11) 1922. Zingher, Abraham: Results of Active Immunization with Diphtheria Toxin-Antitoxin in the Public Schools of New York City, ibid. **78**: 1945 (June 24) 1922; Diphtheria Preventive Work in the Schools of New York City, Arch. Pediat. **38**: 336 (June) 1921.

2. Cooke, J. V.: Active Immunization of Nurses Against Diphtheria in a Children's Hospital, Am. J. Dis. Child. **23**: 496 (June) 1922.

VITAMIN THEORIES

The essential experimental facts about the functions of the best known vitamins have become sufficiently familiar to justify the belief that these newly recognized food factors furnish something of importance in a human diet. Holt[1] recently summarized the service which the newer knowledge has rendered by pointing out how it has helped to place the whole subject of nutrition on a better scientific basis. The experimental has been substituted for the empiric method in determining the value of the different foods. Formerly we might know that certain foods were desirable and necessary; now we are often able to say why such is the case and to determine their precise value in nutrition.

The study of vitamins has helped to make clearer why a variety of foods is so essential to well being, and how danger may follow when diet becomes restricted from either necessity or caprice. Decrying the indiscriminate use of alleged vitamin-bearing preparations as popular therapeutic agents, Holt further utters the warning that until they have been confirmed by adequate clinical experience there is some danger in relying too much on the results of laboratory observations on animals of a different species whose physiologic needs may be different from those of human beings. In a somewhat similar strain, Mitchell[2] has asserted that in the total lack of quantitative data on the vitamin requirement of man, and in the general absence of malnutrition or disease among people in this country which can with any degree of probability be diagnosed as involving vitamin deficiencies, it seems premature to formulate recommendations for the balancing of diets with respect to vitamins. It is pointed out that the classic experiments are conducted in each instance on species peculiarly susceptible to the particular deficiency under investigation. However, this sort of criticism is a conventional one in medicine. While admitting the background of truth in it, we must recall that the clues furnished by animal experimentation have led to so many helpful avenues of information that it would be scientific folly to fail to heed them, even in our as yet inadequate understanding of the possible bearing of vitamins on human welfare. There is no necessary conflict between an open mind and conservatism in scientific judgment. Hence we are glad to reiterate the warning of Mitchell, when he writes:

> At a time when popular periodicals are widely publishing irresponsible articles on vitamins, ignorantly or deliberately creating an entirely distorted popular conception of them, and when commercial concerns are widely advertising purely hypothetical advantages of vitamin preparations, it is particularly important that investigators in nutrition exert great care in the wording of statements as to the practical significance of vitamins in every day life. Otherwise they may become unwilling accomplices in the perpetration of a gigantic fraud upon the American public.

1. Holt, L. E.: The Practical Application of the Results of Vitamin Studies, J. A. M. A. **79**: 129 (July 8) 1922.

2. Mitchell, H. H.: The Necessity of Balancing Dietaries with Respect to Vitamines, Science **56**: 34 (July 14) 1922.

It is in harmony with such conservatism of statement, we believe, that the recent report of the Council on Pharmacy and Chemistry of the American Medical Association on yeast preparations has been formulated.[3]

With so much uncertainty still admitted, it might seem futile to discuss at this time the theories of the mode of action of vitamins. However, the history of science attests that its development has more often been promoted rather than retarded by the leavening influence of hypotheses. Most investigators of the vitamins have looked on them as functioning somewhat as hormones are supposed to act in the organism, namely, as stimulants to certain physiologic mechanisms. Others have imagined the newly discovered factors to be essential components of some, at least, of the living tissues; thus they would be quite as indispensable as are other structural units of the body, such as certain amino-acid groups, calcium, phosphorus or iron. A further group of students has assumed the vitamins to be primarily catalytic in function, thus behaving like the well known enzymes. Hess [4] of Zurich has lately offered somewhat indirect evidence that the antineuritic vitamin, which relieves the symptoms of polyneuritis in animals fed on diets devoid of vitamin B, contributes in some way to the production of oxidative enzymes in the body. Studies in vitro on the tissues of polyneuritic pigeons indicated to him a decrease in the oxidative enzymes usually found in well nourished animals. On this hypothesis the avitaminosis is an expression of poverty of the cells in the factors that facilitate tissue respiration. This is one of the many guesses which the future will need to evaluate in the physiology of vitamins.

THE FUNCTION OF BILE

The secretion and function of bile have long been a disturbing puzzle alike to physiologists and to clinicians; and in spite of many recent additions to our knowledge, there are still many unsolved problems. A critical review by Whipple [5] serves to indicate what has been determined and what is still to be learned concerning this important subject. Perhaps the most striking conclusion is that the entrance of at least a certain amount of bile into the intestine is necessary to life. We see patients survive so long with completely occluded bile tracts that the vital necessity of the bile has often been doubted, and physiologists have supported this doubt by observing that experimental animals seem to do very well when the bile is prevented from entering the bowel. Diet seems to be an important factor in this. For example, a fistula dog will usually die within two months with acute intestinal disturbance if kept on an ordinary diet of kitchen scraps. A diet of milk, cooked potatoes, rice and bread will prolong life considerably, and such dogs may live in good condition for from four to ten months and die with advanced bony abnormalities, osteoporosis resulting from the protracted loss of inorganic salts through the fistula. Abnormal pigment disturbances and true purpura with fatal hemorrhage may develop in such dogs. Addition of cooked liver to the foregoing diet will usually improve the condition and prolong the period of health in these fistula dogs, but they are likely to suffer at times from some of the conditions noted above. Bile fistula dogs with tiny fistulous tracts connecting with the duodenum may live for long periods in perfect health and function. The amount of bile gaining entrance to the duodenum is very small, and can scarcely exceed 10 or 20 per cent. of the total flow which escapes through the external fistula. This shows how little bile may serve to change the entire clinical picture from abnormal to normal. The same amount of bile by mouth will not have any similar effect. Therefore it seems safe to conclude that secretion of bile into the intestine is necessary for normal health and even for actual continuation of life beyond a few months' period.

The use of cholagogues in medicine receives little support from experimental studies, for as far as can be learned the chief if not the only real cholagogue is whole bile or its active principle—that is, the bile acid fraction. The mere fact that drugs are claimed to be cholagogues by some and denied by others will indicate to the student of bile physiology that the cholagogue action is at least insignificant if not absent. Bile salts by mouth or intravenously will cause a distinct rise in the volume of bile secreted by a temporary or permanent fistula. Likewise, a meat diet favors an abundant flow of bile in a bile fistula dog; but a diet rich in carbohydrates, especially sugar, will decrease the bile flow under similar conditions. This shows the importance of diet as influencing the bile flow. None of the so-called cholagogues can be shown to produce the uniform and definite increase in bile flow that is given by bile feeding, and if they have any influence it is less than that produced by a meat diet.

We recently discussed the interesting studies of Rous and McMaster,[6] which demonstrated the remarkable power the gallbladder has to concentrate bile, reducing its volume as much as 90 per cent. in twenty-four hours. This supports the old idea that the gallbladder serves as a reservoir of concentrated bile, to be poured out when needed, and clinical procedures have been devised on the theory that certain stimuli cause the gallbladder to contract and expel its contents into the duodenum, where it may be collected for analysis. But it is difficult to accept this view in the face of experiments

3. Yeast Preparations, New and Nonofficial Remedies, J. A. M. A. **79**: 133 (July 8) 1922.

4. Hess, W. R.: Die Rolle der Vitamine im Zellchemismus, Ztschr. f. physiol. Chem. **107**: 284 (Dec. 21) 1921.

5. Whipple, G. H.: Origin and Significance of Constituents of Bile, Physiol. Rev. **2**: 440 (July) 1922.

6. The Purpose of the Gallbladder, editorial, J. A. M. A. **78**: 584 (Feb. 25) 1922.

which show that dyes introduced into the gallbladder remain there as long as three days, and that the bile that enters the stimulated duodenum does not come from the gallbladder.

Until recently it was generally believed that the bile pigments are all formed in the liver, and only in the liver; hence the dictum of "no jaundice without liver involvement." We now know that there do exist forms of hemolytic icterus with which the liver is not concerned, and apparently the power to change hemoglobin into bile pigment is widely exhibited throughout the body. Probably this is a general property of vascular and serosa endothelium, and Whipple suggests that perhaps the particular activity of the liver in this process depends on its abundant supply of active endothelial tissue in the form of the Kupffer cells. Certainly the liver is ordinarily the chief place in which bile pigments are formed, for injury to the liver depresses bile pigment excretion. There is, in any event, no evidence that the bile pigments serve any useful purpose, and hence they may be regarded entirely as excreted waste products. Nor has any value been ascribed to the cholesterol excreted in the bile, unless we look on the formation of gallstones as a useful function.

Current Comment

ARTIFICIAL PNEUMOTHORAX TWO THOUSAND YEARS AGO

A knowledge of medical history is a most distressing thing, for it discloses persistently that this or the other new discovery is only a rediscovery. We must take our consolation in the fact that generally the first steps were but halting ones, not being backed by sufficient force of actual knowledge to permit them to reach their goal, and hence our newer progress on a more substantial basis is, after all, the only worth while advance. Krause [1] calls attention to the fact that Hippocrates described beyond a doubt the treatment of pulmonary disease, probably empyema, by the production of artificial pneumothorax, in these words: "If this affection results from a wound or, as sometimes happens, from an incision for empyema, one should attach a pipe to a bladder, fill the bladder with air, and send the air into the interior of the chest. And one should insert a solid pewter sound and push it forward. It is by this method that you will get the very best results." While we are accustomed to date the inception of the idea of artificial pneumothorax from Forlanini's first work of forty years ago, it seems that it was well recognized more than a hundred years ago by that English medical genius, Thomas Young, whose book on consumptive diseases, published in 1815, set Krause on the track of the original statement of Hippocrates. Young himself, however, seems not to have considered the idea one of much practical importance, for he says that "however extraordinary the practice appears, it is not impossible that it might be beneficial where the adhesion was not such as to prevent the collapse of the lungs, allowing the wounded parts to reunite more readily than in the natural process of respiration, since they would be more intimately in contact with each other, though not more at rest." By the last phrase of this statement Young indicates that he did not grasp the real underlying principle of the effect of pneumothorax. The words of Hippocrates fail to indicate whether or not the ancient physicians had any understanding as to why pneumothorax was beneficial; but apparently they did recognize it as a useful procedure in some conditions.

1. Krause, A. K.: Am. Rev. Tuberc. **6**: 327 (June) 1922.

THE FATE OF UNCOOKED STARCHES IN THE ALIMENTARY TRACT

Much of the food fuel of man consists of starch, the chief component of the cereals. In its natural state the carbohydrate starch occurs in the form of "grains"—unique microscopic packages including more or less cellulose-like material. The presence of the indigestible cellulose is commonly charged with interfering with the ready digestion of the starch itself by the alimentary secretions possessing amylolytic enzymes. Hence current teaching has supplemented far-reaching empiric experience in dictating such manipulation of starchy foods prior to their being eaten as will decrease the interference of the adherent constituents with ready digestion of the starch. Comminution and cooking are the customary processes employed. The harder and tougher foods, such as wheat, corn and oats, are first ground fine or milled, while others, such as roots and tubers, are heated with water to "rupture" the starch grains. Suitably cooked starchy foods are among the most readily digested components of the human dietary. It came as a surprise to physiologists, however, to learn a few months ago from government laboratories [1] that raw wheat-starch and corn-starch, eaten in quantity by man, can be completely assimilated without any physiologic disturbance and without the detection of unutilized starch grains in the feces. An extension of these studies of Langworthy and Deuel [2] in the U. S. Department of Agriculture has now further demonstrated on healthy men that certain raw starches, including corn, wheat, cassava, rice and taro root, were completely digested when eaten in amounts sometimes as large as 250 gm. a day. Raw tree-fern and true arrowroot (*Maranta arundinacea*) starches were nearly completely digested, but some starch was present in the feces. Raw commercial arrowroot (*Zamia floridana*) and potato starches showed considerably less complete digestion, large quantities being present in the feces. Raw canna starch was even less digestible, its coefficient being only about 50 per cent. In these experiments there seems to be a direct relationship between the size of the starch granule and its digestibility. Whether or not this relationship is accidental has not been determined. One

1. Langworthy, C. F., and Deuel, H. J., Jr.: Digestibility of Raw Corn, Potato and Wheat Starches, J. Biol. Chem. **42**: 27 (May) 1920.
2. Langworthy, C. F., and Deuel, H. J., Jr.: Digestibility of Raw Rice, Arrowroot, Canna, Cassava, Taro, Tree-Fern and Potato Starches, J. Biol. Chem. **52**: 251 (May) 1922.

might readily suppose, the government investigators add, that the larger starch granule contained a thicker cellulose covering, and consequently one more impervious to the digestive ferments than the smaller granule. The factor of surface area might also come into consideration, since, the larger the granule, the proportionately smaller surface area for being attacked. Clinical experience bears out the relatively poor digestion of uncooked or poorly cooked potatoes. The experimental findings regarding the utilization of raw starch from the alimentary tract of man need not be construed as advice to avoid cooking, but rather should be interpreted as evidence of one of the many factors of safety possessed by the human organism.

BASAL METABOLISM IN DISEASE

The expressions "basal metabolism" and "metabolic rate" have come into considerable prominence in medicine within the last few years, during which clinical calorimetry has risen to a position of undeniable dignity. The symposium on the subject that was reported in THE JOURNAL about a year ago indicated not only the importance of the newer knowledge in this field but also the limitations of its exploitation, the difficulties of technic, and the dangers of improper experimentation. Many factors may alter the metabolism of man. Food and muscular activity are, perhaps, foremost in increasing the exchange of materials and the output of heat; but the basal metabolism refers to the behavior of the organism in its energy transformation without food and at rest. Fever increases the basal metabolism, the rise in temperature being accompanied by an increased heat production corresponding in amount to the degree of fever.[1] Such cases are usually attended with a so-called toxic destruction of protein in the body. Diseases such as arthritis, though generally regarded as infectious in origin, are believed by some clinicians to be due to disturbed metabolism. Observations by Cecil, Barr and Du Bois[2] in cases of arthritis deformans give no support to the latter view. The metabolic rate has been found to be normal; and, if arthritis is infectious in origin, the infection cannot be accompanied by increase in basal metabolism or by toxic destruction of body protein. The classic instance of the helpful demonstrations of variations in basal metabolism concern disturbances in thyroid function, the high and low rates in hyperthyroidism and hypothyroidism, respectively, being well appreciated.[3] With respect to the other glands of internal secretion, however, it must still be said that the variations in basal metabolic rate for which they are responsible cannot yet be foretold. It is important at this time to realize and transmit this conclusion, which is clearly indicated in a recent review of the subject by Aub and Taylor.[4] The pertinent literature is enormous; but for those who are not sufficiently expert to sift fact from fiction and truth from pseudoscience, the best rule is to maintain an attitude of intelligent skepticism when small variations of basal metabolism are heralded as indicative of large clinical values.

1. Barr, D. P.; Cecil, R. L., and Du Bois, E. F.: Clinical Calorimetry, XXXII, Temperature Regulation After the Intravenous Injection of Proteose and Typhoid Vaccine, Arch. Int. Med. **29**: 608 (May) 1922.
2. Cecil, R. L.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, XXXI, Observations on the Metabolism of Arthritis, Arch. Int. Med. **29**: 583 (May) 1922.
3. Boothby, W. M.: The Basal Metabolic Rate in Hyperthyroidism, J. A. M. A. **77**: 252 (July 23) 1921. Janney, N. W., and Henderson, H. E.: Concerning the Diagnosis and Treatment of Hypothyroidism, Arch. Int. Med. **26**: 297 (Sept.) 1920. Janney, N. W.: Diagnosis of Hypothyroidism, California State J. Med. **19**: 313, 1921.
4. Aub, J. C., and Taylor, Martha: The Effect of Body Tissues Other Than the Thyroid upon the Basal Metabolic Rate, Endocrinology **6**: 255 (March) 1922.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital Closed.—The Red Mountain Sanatorium, Birmingham, established by the Antituberculosis Association of Jefferson County twelve years ago, was closed in July. The work will be partly carried on by county appropriation, while the association directs its activities to instruction and preventive work among schoolchildren. The sanatorium has cost the association about $18,000 a year, and it is expected that a suitable structure will be erected at the county farm for tuberculosis patients, for which the county would have to appropriate no more than it has already for the antituberculosis association.

CALIFORNIA

New Associate Secretary.—Following out the policies endorsed by the Council of the Medical Society of the State of California, the publicity bureau has appointed Dr. Howard H. Johnson, full-time associate secretary of the state society.

Hospital Convention.—The second annual convention of the hospitals of California will be held under the auspices of the League for the Conservation of Public Health, September 5-8, in Pasadena. The council of the state medical society will hold two meetings, September 9, the council will meet with the presidents and secretaries of all the county medical societies. Dr. Charles Lockwood, 295 Markham Place, Pasadena, is chairman of the committee of arrangements.

Fake Healer Found Guilty.—It is reported that "Dr." W. H. Jones was found guilty on a charge of practicing medicine without a license in Oakland, July 7. He was placed on probation for six months with the provision that he pay $110 to Mrs. Burbank, the plaintiff. Johns guaranteed to cure an injured knee for $200, of which $100 had been paid by Mrs. Burbank. He also discovered that her little boy was the victim of some disease which he agreed to cure for $100. Ten dollars was paid him on account.

CANAL ZONE

The Gorgas Memorial.—Dr. R. P. Strong, who has just returned from his fourth trip to Panama, has announced that it has been decided to establish first divisions of bacteriology, pathology protozoology, helminthology, biochemistry, entomology, plant pathology and animal diseases, in the new Gorgas Memorial Institute of Tropical and Preventive Medicine, at Panama. These departments will be organized with laboratories for research work, particularly in connection with the study of the mode of spread of the most important infectious diseases of man and animals. There will be close cooperation between the institute and the Ancon Hospital and Leprosarium. In addition to the foregoing subjects, tropical botany and the biologic effect of sunlight will also receive attention. Provision will be made for the instruction of a limited number of students, the courses of instruction to be designed especially for those who have had laboratory training before. A limited number of research workers will also be received. Dr. Strong states that, since the president of a small South American republic, already overtaxed, had donated a memorial to an American, it was the duty of all American citizens, not only American physicians, to provide a suitable endowment fund with which to carry on the work of the institute.

COLORADO

Personal.—Dr. Richard W. Corwin has returned to Pueblo after completing a tour around the world, which he undertook in September, 1921. Dr. Corwin's trip embraced Italy, Egypt, India, China, Japan, Korea, Australia and Honolulu. ——Dr. Philip Work, neurologist at the Woodcroft Hospital, Pueblo, has resigned from that position and will limit his practice to nervous and mental diseases.

New Medical Society.—The organization meeting of the Arkansas Valley Medical Society was held in La Junta, July 11. The following officers were elected for the ensuing year: president, Dr. Ralph Johnson, La Junta; vice president, Dr. M. Holmes, Cannon City, and secretary-treasurer, Dr. Harold T. Low, Pueblo. The association will hold a week-end meeting about September 1, in the mountains.

DISTRICT OF COLUMBIA

Medical Faculty of Georgetown University.—Changes in the medical faculty of the Georgetown University, Washington, have been announced by President John B. Creedon. Major Joseph P. Madigan, who has resigned from the Army, is to take the chair of anatomy. Dr. Thomas E. Neill and Dr. Murray Russell have been appointed associate clinical professors of surgery, and Dr. Harry A. Ong has been named as associate clinical professor of medicine.

FLORIDA

State Medical Meeting.—At the forty-ninth annual meeting of the Florida Medical Association held in Havana, Cuba, June 27-28, under the presidency of Dr. S. R. M. Kennedy, Pensacola, the following officers were elected for the ensuing year: president, Dr. Leonidas M. Anderson, Lake City; vice presidents, Drs. Herman Marshall Taylor, Jacksonville, Joseph L. Kirby-Smith, Jacksonville, and Leland F. Carleton, Tampa, and secretary, Dr. Graham E. Henson, Jacksonville.

Health Conference.—A conference was held in Orlando, July 5-6, of state, health and sanitary authorities for the purpose of standardizing and rendering uniform state laws governing health and sanitation throughout the state. Dr. Raymond C. Turck, Jacksonville, state health officer; Dr. Jesse R. Harris, Tampa, head of the department of health; Dr. Arms, Jacksonville, city physician; W. E. A. Wyman, St. Petersburg, pure food inspector, and Dr. Alvin J. Wood, city physician of St. Petersburg, were among the many that attended the conference.

GEORGIA

Prison Sentence for Physician.—It is reported that Judge Grubb recently sentenced Dr. H. E. Pontius, Atlanta, to eighteen months in the federal pentitentiary at Atlanta, for violation of the Harrison Narcotic Law.

ILLINOIS

Personal.—Prof. William C. Rose, Ph.D., who has held the chair of biochemistry in the University of Texas Department of Medicine, Galveston, since 1913, has resigned to become head of the department of chemistry of the University of Illinois, Urbana.

Illegal Practitioner Fined.—It is reported that Theodore Dilinsky, aged 71, of Houston Avenue, South Chicago, was fined $50 and costs by Judge Joseph W. Schulman recently, for practicing medicine without a license. Dilinsky attended a 3-year-old child who had been overcome by gas. The child died.

Physicians Fined.—It is reported that Drs. William R. Wesenberg and J. F. Hargan, both of Mound City, recently paid $10 each and costs for failure to report births. The complaints against the physicians were filed by the local state's attorney at the request of a special agent from the state department of public health.

New Bulletin on Medical Service in Schools.—The state department of public health announces the completion of a new bulletin setting forth detailed instructions in reference to the medical inspection of schoolchildren. The function of the school physician, the place and work of the school nurse and the part that should be played by the teacher, as viewed by the department, are all described. It is felt that the bulletin will be especially helpful to public health officers, school nurses and teachers. Copies may be had after August 15 by persons or organizations in Illinois without cost.

Pasteurization Campaigns.—The state department of public health has recently put in motion a campaign in favor of milk pasteurization. A model ordinance has been drawn up and the twenty-odd district health superintendents have been instructed to take advantage of every opportunity and to use every effort at their disposal in securing the adoption of the ordinance by the various communities in their several districts. Two recent and rather serious outbreaks of typhoid fever which were traced to the use of raw milk have added impetus to the campaign in certain sections. Nearly a score of the larger cities have the proposition of adopting the ordinance now up for consideration, while half a dozen have already adopted and are now enforcing it.

Hospital News.—The Sisters of St. Francis of Peoria have recently purchased the Holmes Hospital, Macomb, for $65,000. The institution will be consolidated with the present St. Francis Hospital.——The contract has been awarded for an addition to St. John's Hospital, Springfield, at a cost of $15,000.——Bids will be taken to August 15, on the $300,000 tuberculosis hospital building to be erected at Edwardsville by the county commissioners.——The new $75,000 addition to St. Francis Hospital, Litchfield, has just been completed, and another building will be erected for a power plant and employees' quarters at a cost of $35,000.——The John Marshall Browning Hospital, recently completed at DuQuoin, was dedicated, July 20. Dr. Clarence W. East, chief of the division of child hygiene and public health nursing of the state department of public health, delivered the principal address.

Chicago

Personal.—Dr. William A. Evans, medical editor of the Chicago *Tribune*, delivered an address before the Canadian and Ontario dental associations at the University of Toronto, Canada, recently.——The king of Denmark has conferred a knighthood on Dr. Peter Clemensen, Chicago, former member of the board of education.

Czechoslovak Hospital.—At a recent meeting of American citizens of Czechoslovak descent in Chicago, plans were made for the erection of a Czechoslovak Hospital. For this purpose, $30,000 has already been subscribed and a considerably larger sum pledged. The purpose of this institution is to provide physicians and nurses who speak their own language for the Czechoslovakians resident in and around Chicago.

INDIANA

Health Board Secretary Resigns.—Dr. John N. Hurty, Indianapolis, for more than twenty-six years secretary of the state board of health, presented his resignation, July 19, to take effect September 30. Dr. Hurty is Republican nominee in Marion County for the legislature. His successor has not yet been named.

IOWA

Personal.—Dr. Marcus P. Neal, assistant professor of pathology and bacteriology at the State University of Iowa College of Medicine, Iowa City, has accepted a position as professor of pathology and bacteriology at the University of Missouri School of Medicine, Columbia.——Dr. Edgar M. Medlar, head of the department of pathology at the University of Iowa, has left for Mount McGregor, N. Y., where he will do research work.——Dr. John Shuman, Sioux City, has accepted a position as professor of internal medicine at the American University, Beirut, Assyria, to succeed Dr. Harry Graham, recently deceased. Dr. Shuman will leave for his post abroad about the end of August.——Dr. John H. Stalford, Sac City, was recently reelected president of the Wall Lake District Medical Society.

KENTUCKY

Summer School.—A health conference, with the slogan "Live a little longer" was the feature of the summer school sessions at the University of Kentucky, Lexington, July 10-15. Dr. Percy K. Holmes, head of the department of hygiene and public health of the university, presided. Among the speakers were: Dr. Edith Hale Swift of the American Hygiene Association, New York; Dr. Annie Welch, director of the Bureau of Child Hygiene, Louisville, and Dr. John McMullen, U. S. Public Health Service.

LOUISIANA

Public Health News.—It has been officially announced by the U. S. Public Health Service that plague eradication work will be discontinued in New Orleans. For nearly a year not one single trace of rat infection has been discovered by the federal health workers under the direction of Dr. Marion S.

Lombard, and New Orleans has been given a clean bill of health as far as plague is concerned.

Campaign Against Ants.—The New Orleans Board of Health has given official approval to an extensive campaign against ants in the city, following individual requests from hundreds of residents. Surveys of the result of the campaign against the ant last year show that the extermination work was 95 per cent. effective. The cost of ridding the entire city of ants would be approximately $40,000, making an average of $12 for each block. The U. S. government entomologist will have charge of the campaign. Organization must be perfected and the funds which make extermination work possible must be in hand by August 15.

Hospital News.—The Eye, Ear, Nose and Throat Hospital, New Orleans, will move into a new building at Tulane Avenue. When the new four-story fireproof building is completed, the accommodations will represent an outlay of $500,000. Bequests and gifts from various people have made this possible, $100,000 being donated by Isaac Delgado, $20,000 by A. C. Hutchinson, $6,000 by Thomy Lafon, the negro philanthropist, and $50,000 by Mrs. John Dibert. Dr. Henry Dickson Burns is surgeon-in-chief. He succeeded the late Dr. DeRoaldes, founder of the institution.——A site has recently been purchased in New Orleans by Mrs. Thomas of New York for a home for worthy old people and convalescent mothers. This institution will be known as the Holmes-Thomas Home and Mrs. Thomas has set aside a trust fund of about $800,000 for the erection and endowment of the home. The donor requests that not more than one third of the principal be expended for the construction of the institution. Dr. Rudolph Matas and Dr. A. B. Dinwiddie, president of Tulane University, have been requested to act on the board of directors of the home fund corporation.——A twin building joined by another structure to the first quarters of the St. Rita Surgical Infirmary, New Orleans, is being erected to double the capacity of the institution. Two operating rooms, more than fifty beds and many other improvements will ultimately be incorporated in the hospital.

MARYLAND

Personal.—Dr. George W. Corner, associate professor of anatomy at Johns Hopkins University Medical School, Baltimore, has been appointed head of the department of anatomy in the new school of medicine and dentistry now being organized at the University of Rochester, N. Y.

Hospital News.—Work has been started on the $200,000 hospital building and kitchen of the Maryland State Sanatorium, Henrytown.——Working drawings for the municipal hospital for infectious diseases to be erected at Montebello, Baltimore, have been signed by Dr. C. Hampson Jones, commissioner of health, Baltimore.

Test of Birth Records in Maryland.—Birth registration of children born in Maryland is to be subjected to a complete test under a plan worked out by Dr. John S. Fulton, secretary of the state department of health, in cooperation with the Maryland League of Women Voters. Under the plan, 1,000 mothers, members of the league, will request from the state department of health certificates of the registration of the births of their children under 5 years of age. There is a law in the state requiring a report to the state department of health of the birth of every child, but it is believed the figures are far from being complete. All of the work is being done to prepare for the opening of the child hygiene bureau, of which Dr. J. H. Mason Knox has been recently appointed chief. When it is ascertained where the health department stands in this matter, steps will be taken to put the bureau in shape to compute the death rate of children in Maryland and to take immediate steps to lower it.

MASSACHUSETTS

Floating Hospital.—The Boston Floating Hospital started from the North Pier, June 28, on its twenty-ninth annual health voyage for children. The ship leaves daily, returning in the evening, and anchors for the night. It has accommodations for about 115 permanent patients, and from eighty to 100 day patients. The staff is composed of seventy nurses and sixteen physicians, under the direction of Dr. Henry I. Bowditch.

Public Health Lectures.—The Committee on Public Health of the Massachusetts Medical Society has been able, during the last three years, to arrange with well known specialists to give talks at meetings of the district medical societies in Massachusetts. A similar arrangement has been made this year and the following physicians will speak without charge before the societies, for thirty or forty minutes, on subjects relating to the promotion of public health: Drs. Jose Penteado Bill, Frank C. Dunbar, Walter E. Fernald, Timothy Leary, Edwin H. Place, C. Morton Smith, George Gilbert Smith, Lesley H. Spooner, William C. Woodward and Thomas F. Kenney. George H. Wright, D.M.D., lecturer on hygiene at Harvard Dental School, will give lectures on dental surgery.

MICHIGAN

Hospital News.—A new hospital will be constructed at Traverse City to take the place of the old General Hospital, as authorized by the state administrative board. Construction work will be started this month on the new modern building. The institution will have a capacity of fifty beds and well equipped maternity, surgical and medical wards. It will be under the direction of Dr. J. D. Munson, who is now superintendent of the Traverse City State Hospital.——The Westerlin Hospital, Iron Mountain, has been purchased by the Franciscan Sisters of Charity, it was recently announced.——The new St. Lawrence Hospital, Lansing, will be erected in the near future at a cost of $350,000. The Sisters of Mercy will donate $150,000 toward the building.

MONTANA

State Medical Meeting.—At the annual meeting of the Medical Association of Montana, held at Great Falls, July 12-13, under the presidency of Dr. W. W. Andrus, Miles City, the following officers were elected for the ensuing year: president, Dr. Harmon T. Rhoads, Choteau; vice presidents, Drs. P. A. Dolan, Helena, James B. Reynolds, Great Falls, and Lawrence R. Packard, Whitehall, and secretary-treasurer, Elmer G. Balsam, Billings (reelected).

Personal.—Dr. Howard L. Botts, Billings, county health officer, has resigned to accept a position in Seattle. Dr. Eri M. Farr has been appointed successor to Dr. Botts.——Dr. Ernest D. Hitchcock, epidemiologist for the state board of health and director of the hygiene laboratory, Helena, has resigned to associate himself with a clinical group in Great Falls. Dr. Hitchcock will take over the diagnostic work of the clinic and for the Deaconess Hospital.

NEBRASKA

Personal.—Dr. Margaret W. Koenig, Lincoln, child welfare worker for the Lincoln board of education, has left for Washington, D. C., to take up rural child hygiene for the government, under the provisions of the Sheppard-Towner bill. Her first work will be in Tennessee.

Health Officer Urges Reports on Contagious Diseases.—Dr. I. H. Dillon, chief of the bureau of health of Nebraska, has recently called the attention of physicians of the state to their laxity in reporting contagious diseases. Evidence is cited to indicate that in some instances more deaths than cases are reported, making it impossible to secure adequate statistics. In concluding his statement, Dr. Dillon states that he is opposed to "state medicine"; but, he warns, "Unless the medical profession, both individually and collectively, are able to show a better record . . . the public will, in the near future, provide for some form of state medicine by legislative enactment, for its own protection."

Nutrition Institute.—At the summer school of education conducted by the Cleveland Public Schools, a nutrition institute was held recently at Lincoln. The Lincoln Institute was the first to be held by the department of medical inspection in the city. About 100 people were in attendance, including a number of physicians. Dr. Katharine H. R. Wolfe organized this department. Dr. William R. P. Emerson gave addresses at dinners and conferences of representatives of the leading child-helping organizations, including the Associated Charities and juvenile court, the educational executives of the University of Nebraska, and of the public schools, and members of the medical and dental associations. In September, an institute will be held in Hartford, under the direction of the nutrition clinics for delicate children, followed by others in Poughkeepsie, Battle Creek, Denver and Honolulu.

NEW JERSEY

Psychologic Test at University.—It has been recently announced that Princeton University will require every man entering the college to undergo a psychologic test in addition

to the regular examination. A trial period of two years has been set for the test. If, however, a man fails to pass the test, but his written examinations are satisfactory, he will not be disqualified. At the end of the trial period if the report of the faculty committee which has charge of the test proves satisfactory, the psychologic test will be thereafter essential as a written examination.

NEW YORK

Columbia University Teaches Eye Conservation.—The first training course in eye conservation ever given for teachers under the auspices of an American university was opened recently at Columbia University, with a class of twenty-one. A feature of the course is an observation class composed of children from New York City schools whose defects of vision have placed them in the sight-saving classes. Dr. Robert R. Irwin, supervisor of the sight-saving department of the public school of Cleveland, is general director of the Columbia course. A committee, composed of representatives of city, state and national organizations, which is cooperating with Columbia in the arrangement of these courses is headed by Dr. Thomas J. Riley.

Hospital News.—A new Jewish Hospital will be erected at Buffalo at a cost of $1,000,000.——The cornerstone of the St. Francis Hospital, Poughkeepsie, was laid, July 4.——A three-story addition will be erected at the Buffalo General Hospital.——Construction work will soon be started on the new buildings for Moses Hospital, Ticonderoga, to be erected at a cost of $250,000.——Eleven tuberculosis hospitals in the state have adopted occupational therapy as part of their regular treatment.——A new addition will be made to the state laboratories at Albany at a cost of $90,000.——The Unity Hospital, Brooklyn, has acquired ground for the purpose of erecting a modern institution devoted to the treatment of diseases of the eye, ear, nose and throat and oral surgery. The building will be four stories high and will be equipped with modern facilities.——The Methodist Hospital, Brooklyn, will inaugurate a campaign for $1,000,000 to erect a new maternity pavilion.——Construction work has been started on the new hospital to be erected on the grounds of the state Odd Fellows' Home at Lockport, at a cost of, approximately, $40,000.——The Bronx Maternity Hospital will build a five-story annex to be used as a private pavilion. This building will contain about fifty beds and will enable the hospital, which was opened two years ago, to use its present quarters exclusively for charitable work.——A public health laboratory has been established in the Champlain Valley Hospital at Plattsburg, for Clinton County, by the action of the board of supervisors in appropriating $2,000 annually toward the maintenance of the laboratory. This laboratory was established through a gift from David Merke of Plattsburgh in memory of his parents, and is known as the Merke Memorial Laboratory.

New York City

Find Lost Radium Under Ton of Ashes.—A tube of radium valued at $1,000 was lost at the Methodist Episcopal Hospital, July 12. After a vain search, the radium was located by means of the electroscope beneath about a ton of ashes that had passed through an incinerating plant in the hospital yard. The radium, a 10 milligram tube, was uninjured by its passage through the furnace.

Associated Outpatient Clinics.—At a meeting of the section of ophthalmology, the many problems represented by outpatient work in eye clinics was brought to the attention of the society. Consideration was given to topics such as lack of professional standards, paucity of equipment, overcrowding in all clinics, especially for work on refraction, the abuse of the clinic by patients able to pay, failure of patients to secure glasses when prescribed, unsatisfactory financial arrangements with opticians, lack of uniformity of fees, charges for admission, drugs, laboratory examinations and glasses, lack of organization for research, incompleteness of records and inadequacy of filing systems. A committee was appointed for studying these topics, with Dr. Walter E. Lambert as chairman. Dr. Conrad Berens, Jr., made a study of professional methods, equipment, records, teaching and research in nine institutions. Studies of the admission procedure, fee systems and the provision of glasses in four special eye clinics and eight eye clinics in general dispensaries were made by Dr. Gertrude E. Sturges. In order to ascertain the need for systematic follow-up system in eye clinics, a study was made of 5,200 records from five representative clinics. A summary of the findings of the studies, together with the conclusions and recommendations arrived at by the committee will be presented in the report of the section, which will be available in the fall.

NORTH CAROLINA

Free Vaccine Dispensaries.—Free dispensaries for typhoid and diphtheria vaccine will be conducted in Wake County in July and August, under the direction of Dr. R. F. Long. Dr. Long is substituting for Dr. Bulla, who is very ill.

Medical Meeting.—At the Sixth Councilor District Medical Society of North Carolina held in Durham, recently, Dr. Harris H. Bass, Henderson, was elected president, and Dr. Eric A. Abernethy, Chapel Hill, vice president. Dr. Burton W. Fassett, Durham, was reelected secretary-treasurer.

OHIO

Personal.—Dr. Harry S. Noble, St. Marys, has been elected president of the Auglaise County Medical Society.——Dr. James H. Smith, Holgate, has been appointed county health officer of Henry County and will reside at Napoleon.——Dr. Arthur O. Peters, health commissioner of Dayton, has been elected president of the Montgomery County Medical Society to succeed Dr. C. N. Chrisman.

Public Health News.—The standard of health officers has been raised considerably since the change from a health officer for each township, village and city, to a health commissioner for each city and one for each county. Under the old plan, there were 2,150 health officers in the state. They were elected by health boards, and in the smaller places it was difficult to obtain men who were qualified for the work, many of them having no knowledge of medicine or health work. Of the 171 health commissioners who have replaced them, all but twelve are physicians, and two of the twelve are public health nurses. A correspondence school course provides them with a thorough knowledge of the work required, further augmented by a series of lectures by Dr. E. Shaffer, who has been placed in charge of the lecture bureau.

OREGON

Amalgamation of Medical Societies.—Preliminary plans have been made for the ultimate amalgamation of activities of the Portland City and County Medical Society, the Portland Academy of Medicine and the Oregon State Medical Association. Representatives of each organization were summoned by Dr. John Guy Strohm, president of the city and county medical society, July 4. City Health Officer George Parrish was appointed chairman of a committee of five to investigate the situation, with Dr. Alpha E. Rockey, Dr. William B. Holden, Dr. Clarence J. McCusker and State Health Officer Frederick D. Stricker. The three organizations now have an annual overhead of approximately $21,000. It is estimated that by combining, the expense will be materially reduced and funds saved for the construction of a central building, as headquarters for the combined societies.

PENNSYLVANIA

Personal.—Dr. Richard J. Behan, Pittsburgh, gave an address on "Pain" at a recent meeting of the Allegheny Garrett County Medical Society at Grantsville.——Dr. James G. Cumming, Oil City, has been appointed chief of the bureau of health by Health Director Furbush.——Dr. Lawrence Webster Fox, Philadelphia, recently sailed for Scotland, where he will read a paper before the annual convention of the British Medical Association at Glasgow.——Dr. Pascal Brooke Bland, Philadelphia, was the principal speaker at a meeting of the Cumberland County Medical Society at Vineland, July 11.——Dr. Harry B. Schaeffer, Shillington, has been appointed prison physician at Reading to succeed Dr. Henry P. Brunner, who resigned recently.——The degree of doctor of laws has been conferred by Lafayette College on Dr. Alfred Stengel, professor of medicine in the University of Pennsylvania.——Dr. F. T. Aschmann, Pittsburgh, chemist to the Pennsylvania Bureau of Foods, has been elected chairman of the board of chemists of the bureau, to succeed the late Prof. William Frear.

Philadelphia

Ayer Clinical Laboratory.—The bulletin of the Ayer Clinical Laboratory of Pennsylvania Hospital, which has been suspended for eleven years, is again being published. It is expected the series now under way will be permanent.

SOUTH CAROLINA

Health Officers' Meeting.—The annual meeting of the South Carolina Association of County Health Officials was held in Charleston, July 3-5. Dr. Luther A. Riser, Columbia, director of rural sanitation of the state board of health, and Dr. Leon Banov, health officer of Charleston County, were reelected as president and secretary, respectively.

Venereal Disease Clinics.—The directors of the venereal disease clinics in Spartanburg, Orangeburg, Greenville and Columbia held a meeting in Columbia, June 27, with Dr. James A. Hayne, state health officer, who represents the government in venereal disease work. The officers of these clinics discussed an educational campaign featuring the need of venereal disease clinics in each county in the state. The federal government has appropriated $3,583 for the venereal disease clinics in the state on condition that the clinics appropriate a like amount. The four clinics mentioned have met this condition, so that the clinics have $7,166 to carry on the work, with various contributions and subscriptions from other sources.

VIRGINIA

Mental Health Commission.—The governor has appointed Dr. S. C. Hatcher, Ashland, chairman of the commission on mental health, which was created by an act of the last General Assembly. Dr. Thomas S. Hening, Jefferson; Dr. William D. Prince, Stony Creek; Dr. William F. Drewry, Petersburg; Dr. Albert S. Priddy, Colony; Dr. Ennion G. Williams, Richmond, and Dr. Paul V. Anderson, Richmond, are other members of the commission.

Personal.—Dr. Charles Calhoun Hedges, Marietta, Ga., was appointed instructor in anatomy at the University of Virginia recently.——Dr. Frank Helvestine, Jr., Roanoke, has been appointed instructor in pathology at the University of Virginia, Charlottesville.——Dr. Percy Harris, who was recently appointed city physician for Lynchburg, has resigned the position and decided to remain at Scottsville.——Dr. Edward S. Lester, Witt, has been appointed examining physician by the Norfolk and Western Railway and has moved to Bluefield, W. Va.——Dr. Michael W. Minor, Comorn, has been elected president of the board of directors of the bank of King George.——Dr. Albert C. Lancaster has been elected a member of the city council of Martinsville.——Dr. Stuart McGuire, Richmond, is one of the five men appointed by the governor to complete the personnel of the new war memorial commission, created by terms of a resolution adopted during the last session of the General Assembly.——Dr. William L. Moss, former professor of medicine at the Medical School of Harvard University, Boston, has been appointed head of the school of medicine at the Medical College of Virginia, Richmond.

WEST VIRGINIA

Personal.—Dr. Aaron Arkin, professor of pathology and bacteriology at the West Virginia School of Medicine, Morgantown, has been granted a year's leave of absence for study and research abroad. He will spend the year in Vienna, Berlin, Paris and London doing work in pathology and medicine.

CANADA

Canadian Public Health Association.—The annual meeting of the association was held in St. John, N. B., June 6-7, under the presidency of Hon. W. R. Roberts, minister of health of New Brunswick. The following officers were elected for the ensuing year: president, Dr. William C. Laidlaw, Edmonton, Alta.; vice president, Dr. Joseph A. Baudouin, Montreal; secretary, Dr. John T. Phair, Toronto, and treasurer, Dr. Albert G. Fleming, Toronto.

Honor for Physician.—On the occasion of his retirement from the University of Toronto Faculty of Medicine, a dinner was given in honor of Prof. Irving H. Cameron, June 2, and a portrait of him was presented to the University by Prof. Clarence L. Starr, chairman of the subscribers committee. More than 100 of the subscribers to the portrait attended the banquet. The university was represented by the chancellor, the president and Sir Joseph Flavelle, of the board of governors, who joined in expressing their pleasure in accepting for the university so fitting and lasting a memorial.

Medical Council of Canada.—At the annual meeting of the council held in Ottawa, June 1, the following officers were elected: president, Dr. Louis P. Normand, Three Rivers, Que.; vice president, Dr. James M. MacCallum, Toronto, and registrar, Dr. Robert H. W. Powell, Ottawa. Dr. A. G. Brett, Edmonton, presided. There are thirty-two members of the council, which is an administrative body created under the Canada Medical Act, consisting of representatives from the provinces and the universities. Licentiate of the Medical Council of Canada (L. M. C. C.) is the qualification created by the Canada Medical Act and it is accepted in all provinces as sufficient for license. It was decided to offer an examination in English and French, at Montreal, Que., and Halifax, N. S., October 10.

Medical Association News.—The Canadian Society of Pediatrics was organized at a meeting in Toronto, recently. Dr. Alexander D. Blackader, Montreal, was elected the first president of the society. Dr. Alan G. Brown, Toronto, and Dr. Morgan, Toronto, were elected vice president, and secretary-treasurer, respectively. Drs. Henry P. Wright, Montreal, Alan W. Canfield, Toronto, and John G. A. Campbell, Ottawa, are the members of the executive committee. ——The annual meeting of the British Columbia Medical Association will be held, August 21-26. The place of meeting has not yet been announced.——The Canadian Radiological Society applied at the recent meeting of the Canadian Medical Association in Winnipeg to be recognized as a separate department of medicine in affiliation with the Dominion organization. Its active membership consists exclusively of reputable medical men, members of the Dominion Association, who are actively engaged in this specialty and derive the major portion of their income from it. They have recently established a bureau of consultation, and are prepared to give advice to members of the profession on all matters pertaining to the use of roentgen ray and radium and also to assist and advise institutions and physicians who desire to purchase apparatus in the selection of their equipment.

PHILIPPINE ISLANDS

Child Welfare Clinic.—The Clinica Infantile has been established in the city of Iloilo for the treatment of babies, children, pregnant women and mothers desiring medical advice and treatment, by the Perfection Lodge, Lopez Jaena, No. 3, with the help of some lodges of higher degree. This clinic is operated by physicians who receive no salary for their services and is open for consultations and treatments for two hours daily, free of charge. There is also no charge for medicines. The present clinic is temporarily in the Gonzalez Building, but a new structure is being erected at a cost of, approximately, 3,000 pesos, which will be known as the Clinica Infantile Masonica, with three emergency beds. Additions will be made to the building yearly, with the object of using it eventually for a charity hospital. A campaign has already been inaugurated to raise funds for this purpose. Another clinic for the treatment of tuberculosis will be established in connection with the Clinica Infantile when enough money is available. All the attending physicians are Masons in good standing, but special credit is due to Drs. Zaldariaga, Gilchrist and Hinojales and Mr. E. Gonzalez, for their untiring efforts to make the clinic a success. A baby contest was held in June, in which more than fifty babies took part. Ten prizes were distributed to the mothers of the winning babies.

GENERAL

Warning!—An Old Trick Revived.—A Chicago physician writes that a young man called at his office representing himself to be the son of a down state physician and telling a tale of financial distress because of his having been robbed, etc. He requested a sum of money sufficient to take him to his own home and promised to return the loan by the next day. When the applicant secures the loan, the transaction is finished.

Pacific Coast Association of Anesthetists.—At the annual meeting of the association at Yosemite Valley, the following officers were elected for the ensuing year: president, Dr. George P. Waller, Los Angeles; vice president, Dr. Mary E. Botsford, San Francisco, and secretary-treasurer, Dr. Eleanor C. Seymour, Los Angeles. The next meeting of the association will be held in San Francisco, June 25-27, 1923, in joint session with the American Association of Anesthetists and in conjunction with the Annual Session of the American Medical Association.

National Health Conference.—"Making America healthier" was the object of the Conference of Health Education and the Preparation of Teachers at Lake Mohonk, N. Y., June 26-July 1. The Child Health Organization of America and the U. S. Bureau of Education is cooperating to teach teach-

ers how to convey to children in easily understandable terms the idea of health habits. Charles E. A. Winslow, M.S., M.A., of Yale University School of Medicine, was chairman of the program committee and Dr. Thomas D. Wood of the Teachers' College, Columbia University, was chairman of the sessions for the week. Drs. John R. Finley, state commissioner of education; Mary Swartz Rose, Albert Aheils, Willard S. Small of the U. S. Bureau of Education, Ray L. Wilbur and William D. Wirt were other members of the committee. Dr. L. Emmett Holt, president of the board of trustees of the Child Health Organization of America, delivered the address of welcome.

LATIN AMERICA

Personal Tribute to Cuban Physician.—Spanish public health officials tendered a banquet to Dr. C. E. Kohly, the Cuban delegate to the Sanitary Organization Congress to be held in Madrid. Many of the most prominent Spanish physicians attended, and a speech was delivered by the Spanish secretary of education.

Second Mexican Infant Welfare Congress.—A call has already been issued for the Second Infant Welfare Congress, which will be held in Mexico, Jan. 2-9, 1923. The secretary-general is Dr. F. Castillo Nájera. The chairman of the several sections are: eugenics, Prof. I. Ochoterena; hygiene, Dr. R. Carrillo; medical pediatrics, Dr. J. Cosío; surgical pediatrics, Dr. Díaz Lombardo; education, Dr. A. Pruneda; propaganda, Luis Jasso.

New Argentine Monthly.—A new illustrated medical magazine, *Album Médico Argentino*, has begun publication in Argentine. It will make a feature of illustrations, and all papers published will be accompanied by the author's photograph and autograph. Aside from its scientific section, there will be departments of social, literary and artistic medicine. The first article, by Dr. Eliseo Canton, traces the establishment of the protophysician's office in 1778, which anteceded the foundation of the Argentine medical school in 1801. Before that time, medical matters were under the control of the Lima medical office. The subscription to the *Album* is 12 pesos ($4.38). The editors insist that theirs is not an advertising scheme although at first sight it may seem so. It is printed on good paper, large magazine size, and contains an average of twenty pages. The address is Venezuela 766, Buenos Aires.

Mexican Medical Congress.—Arrangements are being made for the celebration of the Seventh Mexican Medical Congress which will be held at Saltillo, Sept. 3-10, 1922. The following organizing committee is in charge: president, Dr. D. M. Vélez; first vice president, Dr. J. M. Rodríguez; second vice president, Dr. J. Valdez Sánchez; secretary-general, Dr. E. Landa; treasurer, Dr. G. M. Malda; reporter, Dr. T. G. Perrín; members, Drs. F. Bulman, R. Silva, F. Castillo Nájera, Mr. A. Aragón and Dr. E. F. Montaño. An appropriation has been asked of the national government. One of the novelties of the congress will be the sending by the National University of a group of students, who will represent the six different medical years. The organizing committee has begun the publication of a special bulletin to discuss matters related to the congress. Previous congresses were held in 1892, at Mexico City; in 1894, at San Luis Potosí; in 1897, at Guadalajara; in 1910, at Mexico City; in 1918, at Puebla, and in 1920, at Toluca. One of the plans is to have each of the Mexican states appoint a physician to study some local disease and report the results at the meeting.

FOREIGN

Gift to Paris Academy.—One million francs has been bequeathed to the Paris Academy of Medicine by the will of the late Prince Albert of Monaco.

Special Degree in Patologic Anatomy.—The *Liége Médical* of July 9 is devoted entirely to the inaugural thesis of Dr. Jean Firket, when the degree of *Docteur spécial en Sciences anatomo-pathologiques* was conferred on him by the medical faculty of the University of Liége. His subject was "Regeneration of the Blood Platelets After Saponin Poisoning and After Defibrination of the Blood." It was followed by a historical sketch of experimental cancer research to date.

New Heart Journal in Spain.—A journal entitled *Archivos de las Enfermedades del Corazón y de los Vasos* has begun publication in Spain. It will appear irregularly, whenever sufficient material accumulates. It is printed on good paper, with many illustrations. The editor is Dr. Durán Arrom, Paseo de Gracia, 99, Barcelona, who is apparently also the author of all the papers appearing in the first number. The price is 7 pesetas ($1.09).

Union Medical School.—Mission and educational bodies of East China have set in motion a project to build in Shanghai a union medical school at a cost of $500,000, thus reviving an undertaking originally planned by the Rockefeller Foundation, but later abandoned. St. John's University of Shanghai is one of the institutions actively supporting the project. This school has had a medical department for more than a quarter of a century. When the Peking Union Medical College was being erected by the Rockefeller Foundation a plan to expand St. John's Medical School into a Union College at Shanghai was proposed to the Foundation and approved, but the purpose was abandoned in 1920 and has only been revived again recently.

Annual Meeting of the Netherlands Medical Association.—The seventy-third annual meeting of the Nederlandsch Maatschappij tot Bevordering der Geneeskunst was held, July 3, at Maastricht, in the extreme south of the country. The president, Dr. H. Klinkert, opened his address with a quotation from a leading Swiss physician of the last century, Dr. Sonderegger, who wrote on his seventieth birthday, "When I get to Heaven, I will devote myself for the first five thousand years to the study of medicine. What bliss to study the old problems with supernatural insight and ways and means!" Klinkert's brilliant address was devoted to the question whether the increasing tendency to specialism is rendering the family physician superfluous. He reviewed his own fifty-two years of practice as he sought to carry on the sacred torch placed in his hands by the masters before him. "C'est une belle vocation mais un rude métier," but he is convinced that the position of family physician will grow more and more in prestige and importance. "The family physician will keep abreast of progress in the specialties. . . . The scientific and ethical level of the medical profession in a country is the gage of its rank in civilization."

Personal.—Dr. John Hill Abram has been appointed to the chair of medicine of the University of Liverpool, England, made vacant by the resignation of Prof. Thomas R. Glynn. ——Dr. John Thomson and Dr. Norman Walker have been equally awarded the Victoria Jubilee Cullen Prize by the Royal College of Physicians, Edinburgh, for the greatest benefit done to practical medicine. —— Sir Thomas Lewis recently returned to England after four weeks' sojourn in America.——Lieut.-Col. B. H. Deare, professor of medicine at the Medical College of Calcutta, India, has been appointed surgeon-general with the government of Bengal.——The pupils and other friends of Prof. L. Bolk of the chair of anatomy at the University of Amsterdam recently presented him with his portrait in oil, with a number of complimentary addresses; over 570 persons contributed to the fund.——Prof. A. Moussous of the chair of children's diseases at the University of Bordeaux was presented in June with a souvenir plaque and other tributes on the occasion of his promotion in the Legion of Honor.——The Albrecht von Graefe medal is awarded every ten years by the German Ophthalmologic Society. The previous recipients have been Helmholtz, Leber and E. Hering, and this year it was awarded to Hess of Munich. Professor von Hess was the guest of the American Medical Association at the Atlantic City meeting in 1907. ——Professor Grober of Jena has returned from a lecture trip to Argentina.——Dr. Valle Aldabalde and Dr. Vicente Gimeno were elected to the two vacant seats in the Academia Nacional de Medicina at Madrid.——Dr. A. Ferrannini, editor in chief of the *Riforma Medica*, has been decorated by the king of Italy as commander of the Corona d'Italia.——A farewell banquet was tendered to Dr. U. Carpi at Lugano as he left to take charge of the large public hospital at Milan. ——Dr. Gómez Ulla of Madrid was recently tendered a banquet by 300 of his clients and other friends.——Dr. Victor Manuel Nogueras was presented with an engraved tribute signed by all the soldiers who had passed through his hands in the military hospitals at Melilla during the recent campaigns in northern Africa. The occasion was a banquet offered him when on leave in Madrid. The government, the army medical department, the Spanish Red Cross, army nurses, and others joined in the tribute. The *Medicina Ibera* gives details of the addresses.

Deaths in Other Countries

Dr. **L. Benini** of Modigliana, Italy, succumbed to postoperative pneumonia after an operation for hydatid cyst of the liver, aged 63.——Dr. **P. Gerosa,** noted for his campaign to popularize sanatorium treatment for the tuberculous. He bequeathed his property to the sanatorium at his home, Intra.

——Dr. **W. Richter**, chief of the dermatologic service of the Chemnitz public hospital.——Dr. **Ramon Salto** of Madrid. ——Dr. **F. Kratschmer-Forstburg** of Vienna, at one time surgeon-general of the Austrian army, aged 79.——Dr. **Emil Sioli**, formerly professor of psychiatry at Frankfort, aged 70.

Government Services

Maneuvers at Medical Training Camp

The Medical Department Reserve Officers' Training Corps camp, which has been in operation at Carlisle Barracks, Pa., since June 22, was temporarily removed to the Gettysburg battlefield, July 1, for the maneuvers of the U. S. Marines. Two days previously, an exhibit of experimental models of proposed new field devices, as developed by the Medical Department Equipment Laboratory at Carlisle, was set up in the camp of the Marines at Gettysburg, for the purpose of demonstrating this equipment to the officers of the Marines and the attached naval medical personnel. The medical exhibit consisted of an experimental model of a new hospital ward tent for base and evacuation hospitals, together with a proposed new combat wagon, a veterinary leading apparatus, a veterinary ambulance, one standard ambulance spare parts trailer, one wheeled litter carrier, a new food cabinet, and an evacuation hospital electric lighting unit. The lighting unit was operated successfully and received much favorable comment. The exhibit was in charge of Major John P. Fletcher, Medical Corps, U. S. Army, the director of the Medical Department Equipment Laboratory at Carlisle. July 4, there was reenacted the mimic battle of Gettysburg, which was executed with reference to all the practices and inventions with arms of modern production. At the conclusion of the maneuvers, tents were struck and the R. O. T. C. students returned to their own camp at Carlisle Barracks, to resume their training.

Retiring Board for Army

The board of general officers has been appointed to supervise and make recommendations for the reduction of the number of officers in the regular Army, in accordance with a recent act of Congress. Major-Gen. Joseph T. Dickman, retired, will act as president. Other members of the board include Major-Gen. Merritt W. Ireland, Surgeon-General of the Army, Major-Gen. Henry P. McCain (retired), former adjutant-general, and Brig.-Gens. Andre W. Brewster and Ernest Hinds.

Promotions in the Navy

Three officers in the Medical Corps of the Navy have been recommended for promotion by the selective board of the Navy. They are Lieut.-Coms. Addison B. Clifford, Eugene A. Vickery and Richard A. Warner. All are to be advanced to the grade of commander.

Reduction of Army Medical Personnel

In an official report issued by the War Department and signed by General Pershing the number of officers in the Medical Department of the Army to be eliminated as a result of the recent appropriation act of Congress was announced. It follows:

Medical Administrative Corps	143
Dental Corps	76
Veterinary Corps	32
Medical Corps	66
Total	317

The procedure to be followed by the elimination board in selecting the officers to be retired or discharged from the service is also included in the report. An epitome of it reads:

First: All officers having less than ten years' service who are eliminated will be discharged and given a year's pay.

Second: Officers having more than ten years' service, but less than twenty, will be retired on a basis of 2½ per cent. of the pay for each year's service; thus a Captain or Major with twenty years' service will receive 50 per cent. of $2,400 or $3,000, as the case may be, in form of monthly payments as retired pay.

Third: Officers serving more than 25 years will be retired if physical disability exists, on the regular retirement status, that is, 75 per cent. of the rate of pay at the time of retirement. It has been pointed out that few Lieutenants will be affected in the retirement plan, as practically none of them has ten years' service to his credit.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 3, 1922.

The Imperial Bureau of Entomology

Sir Arthur Shipley, in the *Times* recently, contributed an interesting account of the Imperial Bureau of Entomology. The bureau arose from the Entomological Research Committee, which was instituted in 1909, and was established in 1913 to encourage and coordinate entomological work throughout the empire in relation to human, animal and plant diseases. The committee of the bureau is widely representative, and includes the chief entomologist in each of the dominions. Its director is Dr. G. A. K. Marshall. The extent of the work done is shown by the fact that during the last year some 53,000 insects have been submitted for identification by eighty-two correspondents scattered throughout the empire. This collection often contained, of course, more than one specimen of a single species. Identifications of 4,300 different species have been issued in the same period. Much of the material is returned to the collectors, but 13,000 specimens were presented to the British Museum, of which 171 were types or species new to science, and 428 were species not previously represented in the national collection. About 5,000 classified bloodsucking insects were distributed to various institutions throughout the empire for teaching purposes.

Apart from collecting, identifying and registering this vast mass of material, the bureau issues two periodicals of great value. One, a quarterly, the *Bulletin of Entomological Research*, contained in the latest number forty original papers and comprised nearly 500 pages. The other periodical, the *Review of Applied Entomology*, is brought out monthly in two series, one dealing with insects injurious to plants, the other with insects that disseminate human and animal diseases. It summarizes all the papers or books concerning insects of economic importance published in any part of the world in any language. It is interesting to note that, before the collapse of civilization in Russia, the abstracts of Russian articles were almost equal in number to those of the United States. More than 1,000 periodicals are examined by the staff of the bureau, and the last volume contained nearly 2,300 abstracts. The bureau has many other activities. It has gradually collected a library of the utmost value, which is card-catalogued. It has prepared an analysis of the laws of the various countries with respect to the importation of plants which may bring with them new and dangerous pests. By the aid of a donation from the late Mr. Carnegie, it has sent students to study the methods of dealing with insect pests in the United States. It has also sent investigators to tropical Africa who have, under trying circumstances, done good work in connection with various disease-carrying insects. Much of the work is too varied for detailed explanation, and every year it increases. At the present time, the committee has under consideration a new activity—the supply of beneficial parasites to keep down insect pests. The bureau is in effect a clearing house for entomological research. It is financed by grants provided by the imperial government and the governments of the dominions, India and the colonies—forty governments in all. During the year ending March 31, its receipts were $62,500 and its expenditure $55,000.

When Is a Consultant Not a Consultant?

A dispute as to fees which ended in the court is of considerable interest. A physician holding appointments at some

minor hospitals sued for the recovery of $655, fees claimed for visits at $10, consultations at $15 and attendance at an operation on the defendant's son for appendicitis, for which he charged $75. The defense was that the fees were unreasonable, as the work done was not a consultant's. Sir Thomas Horder gave evidence that a consultant's work consisted in seeing patients in conjunction with their family physician or by communication with him. But, being a registered practitioner, the consultant had the right to do the work of a family physician if he had the time and inclination. It was also within the right and privilege of the general practitioner, who possessed the personality and experience, to do the work of a consultant. If a consultant did a general practitioner's work, it would not be fair to charge the same fees as if he were doing a consultant's work.

Sir Thomas thought that the plaintiff, in attending the defendant's son, was acting in the capacity of a family physician. He found it difficult to give an opinion on the fee, but he thought that a reasonable one in the part of London in which the defendant lived would have been $5 before the war. There had been a recommendation that there should be an increase of 50 per cent., to which effect had generally been given. But when several visits were made in one day, $5 would be reasonable, notwithstanding the 50 per cent. He did not consider that $75 for attending an operation was reasonable. In his opinion, $25 would be reasonable, and he would charge that himself. Mr. C. H. Fagge, who performed the operation for appendicitis, said that he thought that the plaintiff was present in the capacity of family physician. His fee for the operation was $787. The defendant gave evidence that, in 1918, the plaintiff attended him on various occasions for a fee of $5 and that he was called in the capacity of a general practitioner.

Mr. Justice McCardie, in giving judgment, said the case raised a question of considerable importance to the public; namely, what fees a physician was entitled to charge in various circumstances. The defendant was a rich man, but he fought the case as a matter of principle. His defense represented a protest by business wealth against the theory that a rich man should pay unusual fees. But the plaintiff contended (in substance) that a physician's fees should vary with the financial status of the patient. After the operation, the plaintiff paid forty-nine visits to the nursing home, sometimes several in the day. For these, he charged $10 each. For the single day of the operation, he had charged $75 for attendance at operation, and $40 for four visits. On other days, he charged for four or three or two visits, as the case might be, at the $10 rate. The justice did not consider the plaintiff a consulting physician in the strictest sense, which meant one who acted only in conjunction with the family physician. He frequently visited the houses of patients in much the same capacity as a general practitioner, charging the same rate of fees. The charge of $75 for attendance at the operation was excessive. Sir Thomas Horder, a physician of the greatest eminence, had said that he would not charge more than $25. The justice also thought that the charge of $40 for the four visits on the day of operation was excessive. He gave judgment for $465.

The Suspended Treatment of Venereal Diseases

In a valedictory presidential address, at the seventh annual meeting of the National Society for Combating Venereal Diseases, Lord Gorell called attention to a problem that has been troubling every one concerned in the suppression of these diseases—the securing of continued treatment until the patient is cured. Statistics from hospitals and clinics disclose a very unsatisfactory condition. In some, the proportion of those who abandon treatment before cure is as high as 70 per cent. In this country, there is neither notification nor compulsory treatment of venereal diseases, such as exists in the British dominions and in foreign countries. The undue regard for the liberty of the subject, with corresponding want of regard for the welfare of the community, which is such a national characteristic and is so patent in neglect of vaccination, is the obstacle. The ministry of health believes that the time has not yet arrived for any general system of compulsory notification.

Food Adulteration: The Use of Preservatives

An appeal to members of Parliament, urging them to protect food from adulteration and deterioration, has been sent by medical, scientific, health, temperance, labor and philanthropic associations. The signatories include Sir H. Maxwell, charmain of the departmental committee on the use of preservatives and coloring matter in foods, and vice president of the Bread and Food Reform League; Sir James Crichton-Browne, chairman, National Health Society; Professor Kenwood, chairman, Council of the Royal Sanitary Institute; Dr. Beckett Overy, chairman, Food Education Society; Dr. Alfred Cox, British Medical Association; Dr. Howart, president, Society of Medical Officers of Health, and Dr. Still, chairman, National League for Health, Maternity and Child Welfare. A manifesto in response to this appeal has been issued by members of Parliament of all parties. They will do all that they can to obtain for Great Britain the protection against food adulteration which has been secured by Canada, Australia and New Zealand, and will support legislation for a bread of high quality as to purity and nutrition. The dominions have already provided that the purchaser must be notified as to the amount of preservative in food which he buys. A considerable amount of illness may be due to this rarely suspected cause. There is evidence that boric acid, the most largely used preservative, has caused serious toxic symptoms in an appreciable proportion of children and adults. The list of foods containing boric acid is increasing, and they are frequently consumed by infants and invalids, on whom they may have an especially injurious effect.

The Profession and the Irregular Practitioner

The conferring of knighthood on Mr. Barker, the bone setter, in recognition of his work as a "manipulative surgeon," reported in a previous letter (THE JOURNAL, July 1, 1922, p. 52), has produced in the lay press a flood of denunciation of the prejudice, narrow mindedness and jealousy of the medical profession in refusing to cooperate with or recognize such a genius. In a letter to the *Times*, Lord Dawson, physician to the London Hospital, combats such an interpretation. He considers that the cooperation of the profession with the callings ancillary to medicine should be encouraged, and that we should never hesitate to seek the help of any worker-chemist, psychotherapist, masseur or healer, when such help seems to be beneficial to the patient. There are no professional rules against this. But cooperation is one thing, admission to the responsibilities and rights of the profession is another. It takes years of hard and organized study to produce a physician. Efficiency is based on knowledge, to reach which there is no short cut. Psychotherapists and healers, for example, have certain specialized aptitudes, and some have brilliant gifts, but they are not physicians. They can do excellent work in their own spheres and when cooperating with physicians. By all means, let us facilitate their doing so, and be open minded and generous in our bearing toward them. But sectional knowledge must be subordinate to the general knowledge of which it is part; those who have not the prescribed medical training should be under the guidance of those who have. A skilled masseur was asked for treatment by a young man suffering from abdominal pain. The treatment was given in good faith, but

without medical guidance. The patient had appendicitis and nearly died. In the interest of the public, the responsibilities of physicians must not be assumed by those without the prescribed training and qualifications. The authorities cannot make exceptions. It is not a question of conserving the privileges of a professional class, but a question of the public safety. This country produces many men with the natural gifts of the sailor. Imagine a gifted amateur wanting to captain a liner. What would the board of trade say? "Very sorry, but you have not the necessary training and certificates, and we cannot give permission." Does not the same apply to the human ship in its voyage across the sea of life?

PARIS

(From Our Regular Correspondent)

June 30, 1922.

The United States and International Intellectual Cooperation

I mentioned in a previous letter (THE JOURNAL, June 10, 1922, p. 1828) that the council of the League of Nations had designated eleven members of the commission to study the question of promoting international intellectual cooperation. The twelfth and last seat was reserved for an American scientist. The general secretary of the league has just been informed that Mr. George Ellery Hale, director of Mount Wilson Observatory and professor of astrophysics at the University of Chicago, has accepted the invitation to take part in the proceedings of the commission as the representative of the United States.

Quinin Sickness of Occupational Origin

Drs. Blamoutier and Joannon, interns of the Paris hospitals, observed in Dr. Jeanselme's service a case of eczema that occurred in a workman employed in a quinin factory. Several clinical and etiologic features of the case inspired them to study the frequency, the importance and the conditions of appearance of this occupational dermatosis. The results of their research were published in the last number of the *Revue d'hygiène*.

Three operations are necessary for the manufacture of quinin: crushing of the cinchona bark to obtain cinchona dust; treating the powder with an oil and acid, and purification of the solutions of quinin salts, desiccation, pulverizing and packing. These three operations are made in different parts of the factory by special workmen. The first and second are made by men, and the third by women. The three operations are not equally dangerous. The dust from cinchona bark is liable to induce skin lesions, and these were quite frequent years ago when the crushing of the bark was made in the open. At one time it even gave rise to serious complaints from workmen, and the factories were obliged to employ others to do the work. Since the crushing machines have been covered, and the cinchona powder is piped through underground channels, these accidents are not so frequent. About a fifth of the workmen employed in the second phase of the manufacture of quinin suffer from skin manifestations. The third operation seems free of danger, as eczema has never been observed among the women employed in drying and packing quinin salts. This observation does not concur with reports from other writers who assert that workmen handling quinin sulphate are subject to skin eruptions. The first evidence of illness is an eruption of the fleeting erythematous type, accompanied by pruritus. It appears in the folds (elbow, axilla, groin) and in the suborbital region, the skin becoming puffy and red. It is in this last region that foremen look for evidence of the condition in new workmen, in order to detect sensitive subjects.

The lesions disappear in a few days, if work is stopped. The second stage presents the typical form, with acute eczema, edema, redness, vesiculation, oozing, secondary formation of scabs and intense pruritus. When work is stopped, the symptoms disappear in about three weeks; but recurrence is inevitable if the subject persists in working in the factory. Workmen are well aware of this phase of the disease; as a rule, when they have suffered from quinin eczema, they do not go back to the factory even to be paid off, but send their wives instead. If the wife of a workman who has been forced to stop work for this reason is employed in the factory, she is obliged to leave the factory lest, through her, there be a recurrence of the husband's dermatosis. The substances with which her clothes are saturated suffice to produce the condition, and long after the workman has left the factory, susceptibility persists in a latent state and flares up under a slight cause. The case is cited of a workman who had suffered from quinin eczema but had not been working at the factory for several years, when he took a small dose of quinin for a slight illness, and a cutaneous reaction occurred. The physician treating him was physician for the quinin factory, and he was unable to understand the case until he recalled the patient's history. Newly engaged workmen who have not shown any sign of eruption after fifteen days are definitely immune. Thus, it can be seen that there exists a sort of test which decides the workman's fate: If there is susceptibility to quinin during the first week, it is never overcome; if there is no susceptibility, it is never acquired later.

On the whole, the sickness is not an ordinary dermatosis due to an external cause, but is a real disease with skin manifestations. It seems that cinchona dust acts as an anaphylaxis-inducing substance. Is it possible to detect the predisposed? Blamoutier and Joannon recall the skin reaction mentioned by Boerner (THE JOURNAL, March 24, 1917, p. 907), and they question whether a similar test could not be applied to newly engaged workmen, to distinguish the sensitive subjects and discharge them before the appearance of the dermatosis. On the other hand, it might be interesting to ascertain whether desensitization of subjects suffering from quinin sickness is not possible. Blamoutier and Joannon are trying to accomplish this by the use of progressive small doses of quinin sulphate, but their experiences have not been decisive to date.

The French Red Cross in Russia

In accordance with the agreement between the soviet republic of Russia and the French Red Cross (THE JOURNAL, April 29, 1922, p. 1327) it has been decided that the French Red Cross mission will leave France for Russia about July 1. Nine thousand tons of various kinds of merchandise is being loaded in Dunkirk on the steamer *Californie* for Petrograd. The general director of the Red Cross, Monsieur Hannonet de la Grange, will be in Russia before the arrival of the relief ship.

Death of Imbert

Dr. Armand Imbert, former professor of physiotherapy of the faculty of medicine of Montpellier, died recently in Marseilles at the age of 71. He had been associate professor at Lyons and later professor at Montpellier, and was at the same time head of the service of electrotherapy and radiography of the Saint-Eloi Hospital. His scientific works deal mostly with biologic physics. In 1896, he introduced in the technic of radiography improvements which insured clearer pictures and admitted a considerable reduction of the length of exposure, which won him the Monthyon prize. He also undertook a series of researches on physiologic optics, the mechanism of muscular contraction, phonation, etc. He was the pioneer in France in the study of the physiology of industrial work, and had the satisfaction of witnessing before his death the creation of laboratories for research on the subject that he was first to consider of scientific and practical value. He was still devoting his time to these studies at

the time of his death. Professor Imbert published the "Anomalies de la vision," a "Traité élémentaire de physique biologique" and a "Traité élementaire de physique générale," the last named with the collaboration of Dr. Bertin-Sans. He wrote also a volume on "Observations économiques de vies ouvrières." He has been national correspondent of the Academy of Medicine since 1899.

The Centenary of Pasteur

A legislative bill that recently passed the chamber of deputies provides for the granting of an appropriation of 3,620,000 francs to enable the state to participate in the commemoration at Strasbourg of the centenary of Pasteur. The committee delegated to inquire into the project has reported that the centenary of this great scientist should be celebrated not in Strasbourg alone but also in Paris and in various cities of Franche-Comté in which Pasteur lived—particularly, Dôle, Lons-le-Saunier, Arbois and Besançon. The committees on public instruction and public health, after hearing Monsieur Strauss, minister of public health, who spoke in the name of the government, reached the same conclusion and decided to request the government to modify the scope of the centenary by eliminating the two words "at Strasbourg." Acting on the suggestion of Monsieur Deville, in turn, the muncipal council of Paris has unanimously voted an appropriation of 50,000 francs for the celebration at Paris of the centenary of Pasteur.

A Medallion Cabinet at the Academy of Medicine

At the last meeting of the Academy of Medicine, Monsieur Hanriot announced that the academy proposed installing, in the hall of the immortals, a cabinet in which would be kept the medallions of members of this assembly.

MADRID

(From Our Regular Correspondent)

July 1, 1922.

Tribute to Cajal

Having reached the age limit, Prof. Santiago Ramón y Cajal has retired as incumbent of the chair of normal histology and pathology of the Madrid Medical School. The whole country has rendered tribute to the great scientist, bestowing on him every distinction and honor, the greatest, perhaps, being the award of the Echegaray medal. This was presented to him in the Royal Academy of Sciences by the king, who delivered a speech overflowing with respect and love for the illustrious Spaniard, who has brought so much prestige to his country. A number of cities have designated Ramón y Cajal as their adopted son; many others have named streets after him, and prizes have been established in his name. The government performed an act of greater importance in introducing a bill for the construction of a building for the Cajal Institute, which was organized, Feb. 20, 1920. The bill carries an appropriation of a million pesetas ($155,400), divided into four sums which will be spent annually from 1922 to 1925 on the building designated as Cajal's Biologic Institute. An appropriation of 50,000 pesetas ($7,770) a year is made for maintenance, including the 10,000 pesetas ($1,540) now provided for Cajal's laboratory. The work of the institute will be directed by a board of trustees presided over by Cajal.

Death of Dr. Azúa

Dr. Azúa, professor of dermatology of the Madrid Medical School and physician to the San Juan de Dios Hospital, is dead. Dr. Azúa was an outstanding personality, his authority as a dermatologist and scientist being acknowledged by all. He was a self-made man, unhampered by his environment, who began his career with a struggle against the dermatologic views prevailing at that time. The French doctrines of the dyscrasias held full sway in Spain, and as a protest, he leaned toward the pathologic and localizing theories of the Vienna school. With his enthusiasm for concrete facts, positive data and experimental control, he opened a common sense path which future generations may follow; and for this the younger physicians are grateful. No practicing physician had a reputation comparable to Azúa's, whose enormous practice brought him a fortune. He was trained by his experiences in the San Juan de Dios Hospital, one of the leading institutions devoted to venereal and skin diseases. His merit was so well known that, in spite of the jealousy always shown by the Madrid University toward hospital physicians, a special chair was created by the minister of education, and Azúa became the first Spanish professor of dermatology and syphilology. This creation of a professorship by a minister, while it turned out well in Azúa's case, was later abused; and it has been one of the causes of the decline of the medical school, as the only qualification enjoyed by several professors appointed in this way was the minister's friendship. Through Azúa's single-handed efforts and determination, the Spanish Dermatologic Society was founded. A few days before his death, he had submitted to the National Academy of Medicine the text of his reception speech; and not long ago a group of South American physicians presented him with a testimonial of their admiration.

Fiftieth Anniversary of Espina y Capó

Dr. Espina y Capó, a specialist in chest diseases, has celebrated his "golden wedding" with medicine. The medical profession showed its admiration and love for the old master by ordering a marble bust, which was unveiled with proper ceremonies in Ward 27, in the General Hospital of Madrid, where Dr. Espina practiced for many years. The provincial board, which has general supervision over the hospital, attended in a body. The medical profession, in spite of its quarrels and passionate disputes, is the one in Spain which knows best how to honor its prominent representatives. There are at present in Madrid not less than ten marble and bronze statues of physicians: Benavente, Federico Rubio, Eugenio Gutiérrez, San Martín, Pulido, Achucarro, Cortezo, Esquerdo, Espina y Capó and Ramón y Cajal. Dr. Espina y Capó has been a great popularizer of his selected field, a noted orator in the National Academy of Medicine and the Public Health Association, and in the senate, where he cooperated in the enactment of sanitary legislation. He is also one of the leaders in the antituberculosis campaign, and the highest authority on this disease in Spain.

BERLIN

(From Our Regular Correspondent)

July 7, 1922.

A Prussian Institute for the Study of Problems of Air Hygiene

In 1901, the Prussian government, having in mind the contamination that drinking water and water used for other purposes undergo, created in Berlin an experiment station for the study of water problems, including the best means of disposing of sewage waters. In 1913, an institute known as the Landesanstalt für Wasserhygiene, with headquarters of its own at Dahlem, near Berlin, was established. The function of this central station was to study from hygienic and economic standpoints the problems pertaining to the securing of adequate and satisfactory water supplies and the disposal of sewage and waste products in general. The institute was, in this connection, to conduct researches and to perform tests of general value and interest. It was to accept any commissions imposed by the various ministries, and

minor researches were to be made for officials and private persons, for which a definite fee was chargeable. Furthermore, it was to furnish central authorities with information and issue certificates or testimonials in the interest of public welfare.

The present director of the institute, Geheimrat Beninde, member of the Prussian ministry of public welfare, has recently issued a statement in which he recommends that the activities of the institute be extended so as to include researches on problems pertaining to air hygiene. Not only the water supplies but also the air is being greatly contaminated by the enormous development of modern industry, and this contamination is exerting an effect on plant and animal life, and more particularly, on the hygienic conditions under which mankind lives. He points out that contamination of the air through industrial plants and the various mechanisms of modern life may be classified under two main heads; through (1) gas, and (2) dust. In the air are found more or less large quantities of carbon dioxid gas, which results from putrefaction and fermentation processes, and carbon monoxid from imperfect combustion of fuels, being found in considerable quantities mixed with the gases of blast furnaces and the smoke from chimneys. Chlorin is found in the air in the vicinity of certain factories; likewise hydrochloric acid, sulphurous acid, sulphuric acid, hydrogen sulphid, volatile fatty acids and other foul smelling gases develop under various fermentative processes. Various forms of air dust have also developed with the increase of industry and traffic. Most prominent are smoke and soot, the products of incomplete combustion of coal. The relation of air contamination to disturbances in the human organism is a well known chapter in pathology, more particularly the part played by air contamination in the causation of occupational diseases. In view of the facts, the Prussian government has already approved Director Beninde's plan and has taken the necessary action to put the Landesanstalt für Wasserhygiene in a position to undertake researches in the domain of air hygiene.

Excess of Male Births

In a previous letter I referred to the question of an excess of boy babies, and recently Dr. Hartmann brought up the subject again, citing statistics in proof of his opinions. In the period from 1915 to 1920, it appears from the records that the excess of boy births materially increased; for example, in Prussia, the excess of boy babies over girl babies was 7.2 per cent., as compared with an excess of 6.2 per cent. for the period 1910 to 1915. In 1919, the excess amounted to 8.6 per cent. In Saxony, the excess amounted in 1917 to 8.2 per cent., and in 1919 to 9.2 per cent. In Bavaria, the excess for 1918 was 8.8 per cent.; for 1919, 8.5 per cent., as compared with an excess of 6.2 per cent. for the period 1910 to 1917.

Statistics on Prostitution

The Munich physician Dr. Marcuse gave here recently a report on the nature and spread of clandestine prostitution in Munich. Of 832 clandestine prostitutes who were rounded up by the police in Munich, 438 were affected with venereal disease, 271 of them for the first time. Of these 832 girls, 333 had been brought up in the city, while 467 were from rural sections (which leaves thirty-two unaccounted for). Of the 832 delinquents, 607 declared that they had no regular means of livelihood; 130 belonged to the 25-30 age group, 260 to the 20-25 group, 256 to the 15-20 group, while five were under 15 years of age. Alcoholism in the family history was noted in 195 cases, insanity in fifty-one cases, and epilepsy in twenty cases. In the case of fifteen, the ancestors had suffered from nervous diseases, while, in sixty-one cases, both parents of the girls had been affected by some predisposing malady.

Marriages

JAMES ALEXANDER WADDELL, University, Va., to Miss Mary C. Graves of Somerset, Va., June 27.

ARTHUR C. KNIGHT, Philipsburg, Mont., to Miss Karen Hansen of Wilbur, Wash., June 29.

JOHN JULIAN CONNELLY, Rockville, Ind., to Miss Harriet Hubbard of Indianapolis, recently.

AUSTIN INGRAM DOBSON, Richmond, Va., to Miss Louise Barham of Emporia, Va., June 6.

JOHN KIRK RICHARDSON to Miss Irene Trotter Geisinger, both of Richmond, Va., June 12.

CARLISLE CALAHAN COCHRAN, Huntersville, N. C., to Miss Adelia John Everette, June 6.

WALTER MCBETH, Royal Center, Ind., to Miss Julia Faye Frye of Adams, Ind., June 28.

PARKS M. KING, Charlotte, N. C., to Miss Anna Howerton of Lexington, Va., June 27.

ROBERT H. BELL to Miss Minnie E. Dilks, both of Carlinville, Ill., June 6.

Deaths

Frank Lester Morrow, Braddock, Pa.; University of Pittsburgh School of Medicine, Pittsburgh, 1913; member of the Medical Society of the State of Pennsylvania; aged 33; was instantly killed, July 5, when the automobile in which he was driving a patient to the hospital was struck by a Baltimore and Ohio express train.

Laughlin O'Neal Malsbury, Peru, Ind.; Kentucky School of Medicine, Louisville, 1891; member of the Indiana State Medical Association; formerly secretary of the Miami County Board of Health; at one time a member of the city council; died, July 5, in Chicago, aged 54, from toxicemia caused by ischiorectal abscess.

Charlotte Steckel Farrington, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania and the Philadelphia Psychiatric Society; died, July 12, at the Presbyterian Hospital, aged 52, from heart disease.

Robert Rice, Haverhill, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1908; member of the Massachusetts Medical Society; on the staff of the General Stephen Henry Gale Hospital, where he died, July 9, aged 50, following a long illness.

Clayton W. Russell, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1890; member of the Ohio State Medical Association; formerly president of the Ohio Eclectic Medical Association; died, July 13, aged 56, from heart disease.

James Eddy Blake ✱ Whitestone, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1898; University of Bonn, Germany, 1902; also a member of the New Hampshire Medical Society; died, July 18, aged 49.

Lauriston M. Berry, Guernsey, Wyo.; University of Vermont College of Medicine, Burlington, Vt., 1869; member of the Wyoming State Medical Society and the Massachusetts Medical Society; died, July 6, aged 80.

George W. Metzger, Hughesville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1866; member of the Medical Society of the State of Pennsylvania; Civil War veteran; died, July 7, aged 81.

Edward Ashby Waugh, Lynchburg, Va.; University of Virginia, Department of Medicine, Charlottesville, Va., 1883; member of the Medical Society of Virginia; died, July 9, aged 69, from angina pectoris.

Albert Henry King, West Palm Beach, Fla.; Cincinnati College of Medicine and Surgery, 1901; member of the Florida Medical Association; died, June 30, at Asheville, N. C., aged 45.

✱ Indicates "Fellow" of the American Medical Association.

Francis W. Boyer, Pottsville, Pa.; University of Pennsylvania School of Medicine, 1868; formerly president of the Milliken Hospital board; died suddenly, July 11, in Germany, aged 73.

George M. Bell, Wakefield, N. C.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Society of the State of North Carolina; died, May 18, aged 66.

James Marcus Everett, De Kalb, Ill.; Rush Medical College, Chicago, 1877; member of the Illinois State Medical Society; died, July 6, aged 69, from interstitial nephritis.

Arthur Reeves, Oberlin, Kan.; Ensworth Medical College, St. Joseph, Mo., 1910; member of the Kansas Medical Society; died, July 7, aged 38, from appendicitis.

Willis E. Kennemur, Sulphur Springs, Texas; Medical Department, University of Louisville, Louisville, Ky., 1894; died, July 3, aged 56, following a long illness.

Caroline Eliza Hastings, Sharon, Mass.; New England Female Medical College, Boston, 1868; died, July 10, aged 80, at the Massachusetts Homeopathic Hospital.

Daniel Albert McCarthy, Troy, N. Y.; Albany Medical College, Albany, N. Y., 1899; formerly city physician; died, June 16, aged 44, at the Troy City Hospital.

Francis Pierce Silva, Boston; Medical School of Harvard University, Boston, 1893; member of the Massachusetts Medical Society; died, July 13, aged 52.

Joseph Benedict Lyons, Boston; Medical School of Harvard University, Boston, 1894; member of the Massachusetts Medical Society; died, July 18, aged 50.

Charles William Buchanan, Jr., Toronto, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1865; died, May 20, aged 84.

John D. Jay, Pera, Ala. (licensed, Alabama, 1888); member of the Medical Association of the State of Alabama; died, July 14, aged 81, from senility.

Thomas F. Flaherty, Massey Station, Ont., Canada; Western University Faculty of Medicine, London, Ont., Canada, 1895; died, May 7, aged 53.

Clara A. Hovey ✽ Chicago; College of Medicine and Surgery (physiomedical) Chicago, 1903; died, July 16, aged 66, from cerebral hemorrhage.

John J. Meigs, Stockton, Calif.; Medical School of Harvard University, Boston, 1860; died, July 6, aged 83, at St. Francis Hospital, San Francisco.

Oscar B. Stafford, La Salle, Ill. (licensed, Illinois, 1877); died, July 6, aged 82, at the People's Hospital, Peru, Ill., following a long illness.

Edward C. Wagner, Wilkes-Barre, Pa.; University of Pennsylvania School of Medicine, 1890; died, July 9, aged 66, from heart disease.

Joseph Roy Hawley ✽ Chicago; Northwestern University Medical School, Chicago, 1893; died, July 20, aged 50, from chronic nephritis.

Henry Clay Rose, Dayton, Tenn.; University of Nashville Medical Department, 1874; died, July 4, aged 72, following a long illness.

Charles Williams, House Springs, Mo.; St. Louis Medical College, 1872; died, July 8, aged 75, from cerebral hemorrhage.

Christian Emil Stafrin ✽ Portland, Ore.; University of Oregon Medical School, Portland, 1911; died suddenly, July 7, aged 46.

Emily Metcalf Thurber, Providence, R. I.; Boston University School of Medicine, Boston, 1878; died, June 30, aged 85.

Hiram S. Chapin, Holder, Ill.; Rush Medical College, Chicago, 1872; died, July 9, aged 73, from chronic arthritis.

Marion Holland, Cassopolis, Mich.; University of Michigan Medical School, Ann Arbor, 1875; died, July 3, aged 70.

George W. Barkman, Govans, Md.; College of Physicians and Surgeons, Baltimore, 1881; died, July 11, aged 71.

Joseph H. Lurie, New York; University of Berlin, Germany, 1875; died, July 9, aged 74, from heart disease.

John Ward Willson, Baltimore; Baltimore University School of Medicine, 1889; died, June 24, aged 77.

Albert Franklin Bonney, Buck Grove, Iowa (licensed, Iowa, 1889); died, June 30, aged 68, from uremia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE AMERICAN MEDICAL LIBERTY LEAGUE

It was in 1910 that the speciously named "National League for Medical Freedom" began its intensive campaign against scientific medicine in general and the American Medical Association in particular. Engineered and inspired by nostrum exploiters and those opposed to pure food laws, aided and abetted by the followers of the various cults, the League for Medical Freedom blazed its rocket-like course across the medical firmament—and, in due time the stick came down! Doubtless there was good money in it for some one while it lasted. Tens, if not hundreds of thousands of dollars, were expended in newspaper advertising alone. But its effort was abortive because it was fundamentally wrong-headed and the good sense of the American people penetrated the motives that were behind it.

It is some time since we have heard of the "National League for Medical Freedom"; today there is another organization less heavily financed, but still, doubtless, producing a living for those who engineer it. It is the "American Medical Liberty League," with headquarters in Chicago. This concern does little, if any, newspaper advertising. It does, however, get out a set of leaflets and pamphlets and those who are, for one reason or another, opposed to scientific medicine, purchase these leaflets and distribute them.

SOME LIBERTY LEAGUE LITERATURE

As indicative of the type of "literature" thus issued, the following partial list is given:

"Medical Health Officers Syphilizing the Nation": This leaflet declares that all vaccine virus shows the reaction of congenital syphilis and "even the vaccine scars show its contamination." The leaflet quotes as its authority for this charge Albert Abrams, A.M., LL.D., M.D. (Heidelberg), F.R.M.S. Price, 45c a hundred.

"Toxin-Antitoxin—How It Kills and Cripples Children": Purports to be a "Detailed Story of the Horrible Results Following a Texas Serum Campaign." Price, $1.00 per hundred.

"The American Medical Liberty League": Professes to tell what the "League" is, "Why you need it" and, in large bold-faced capital letters, "HOW TO WORK IT!" Only 40c a hundred.

"The Going of Cumming": Said to be "Paragraphs on the Enlightenment on Calf Pus Cult"; in reality, a tirade against Surgeon-General Hugh S. Cumming. They come at 70c a hundred.

"Know the Facts About Vaccination": An alleged compilation of "statistics and expert testimony" brought together by Lora C. Little (of whom more later) and reprinted by permission from Dr. George Starr White's (of whom, also, more later) "Lecture Course to Physicians." Ten cents a copy.

These are but a few of the pieces of propaganda that are being sent out by the "American Medical Liberty League." At their headquarters they will also hand out to those interested, a reprint from the *Lindlahr Magazine* (the house organ of a so-called "nature cure institute") telling of the marvels of the "electronic diagnosis and treatment" of Albert Abrams! They hand out, too, the *Central States Osteopath*, the official organ of the Illinois and Wisconsin osteopaths.

SOME INQUIRIES

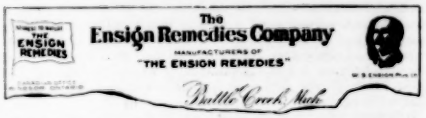
During the past two or three years inquiries have been received relative to the "League." A physician, health officer in a Virginia city, wrote:

"I enclose a leaflet of the American Medical Liberty League, Chicago, Ill. This leaflet was submitted to a local paper as an advertisement to be charged to the account of a chiropractor of this city. The newspaper informed me that it has refused to publish it. I am interested, not only in the anti-vaccination propaganda of this leaflet, but also am pleased that the newspaper should have refused to publish it."

This from the state health officer of a southern state:

"Will you please advise me as to the cult Mrs. Little represents?"

These are representative of inquiries received. The American Medical Liberty League was brought into existence in the latter part of 1918. Lora C. Little seems to be the moving spirit of the organization and appears officially as its "secretary." In November, 1918, Mrs. Little sent out a mimeographed letter headed: "STRICTLY PERSONAL AND CONFIDENTIAL." It was to the effect that with the coming of peace there would "burst forth" what was described as "long-pent feeling over medical outrages, committed wholesale the past two years. . . ." Further, this bursting would give a grand opportunity to the believers in "medical freedom" to make a killing. "Two big things" would be necessary to "meet the situation": first, "a full exposure, backed by an array of authentic facts" which must be, "when the proper time has come, widely distributed"; second, "a definite program of action."



Reproduction (reduced) of the letterhead of the Ensign Remedies Company, a concern which sells cures for "Disappointment in Love," "Floating Kidney," "Laziness," "Locomotor Ataxia" and many other conditions.

Then came the nub. To accomplish these "two big things" funds were required; hence, the appeal for "membership" in the American Medical Liberty League, price $2.00 a year "which covers subscription to the *Truth-Teller*." According to Mrs. Little, ten individuals in any locality who join the "League" and pay their annual fees may organize a "Local League."

THE "TRUTH-TELLER"

Before dealing with the personnel of the founders of the League, which in itself is interesting, something should be said about the "League's" official organ, the *Truth-Teller*—ironical name! This somewhat lurid sheet is "published semi-monthly by the Truth-Teller Publishing Company at 38 N. Division St., Battle Creek, Mich." The Battle Creek telephone directory does not show any company of this name, but it does show the "Ensign Printing Co." at 38 N. Division St. The editor of the *Truth-Teller* is W. S. Ensign—of whom more later—who puts after his name the mystic abbreviation "Phys. et Pat. Ch." Its "Associate Editor" is Wilhelm Heinrich Schwartz, M.D.; its "Managing Editor" is D. W. Ensign and its "Traveling Representative" is Thomas D. Ensign; in short, it seems to be largely an Ensign publication. The *Truth-Teller* keeps no subscription books but, if you receive a copy of it regularly, "you can rest assured that the subscription price of same has been paid." The *Truth-Teller* was previously *The Peril* ("America's Weekly Journal. Devoted to Homeopathy and Humanity") which, in turn, was originally known as *America's Homeopathic News*, edited by Wilhelm Heinrich Schwartz, M.D., "Vice-President of International Anti-Vivisection and Cruelty to Animals Congress," etc., etc.

But, to get back to the American Medical Liberty League: In the "Strictly Personal and Confidential" letter previously referred to, the officers of the "League" were given as follows:

President—Charles M. Higgins
Vice-President—Eli G. Jones
Secretary—Lora C. Little
Treasurer—D. W. Ensign
Director—J. H. Greer
Director—W. S. Ensign
Director—J. W. Griggs

CHARLES M. HIGGINS, Brooklyn, New York: This gentleman was, if he is not still, the treasurer of the "Anti-Vaccination League of America," and a somewhat active member of the "National League for Medical Freedom." He is, or was, a member of the "Vivisection Investigation League," and the "New York Anti-Vivisection Society." He published a sixty-four page pamphlet ("with exhaustive index, 10c, post paid") entitled "The Crime Against the School Child," which advised the public "how to legally defeat vaccination, the medical evil which now kills more children than smallpox." This was advertised in the *Truth-Teller*. In 1917 Higgins also issued a twenty-four page pamphlet entitled "Restore the Coroners, Check Dangerous Medical Domination, and Protect Public Life and Safety."

ELI G. JONES, Buffalo, New York: Dr. Jones was graduated fifty years ago (1872) by Dartmouth Medical School. He was for some time "President" of the egregious "American Association of Progressive Medicine." A few years ago he was sending out circular letters to physicians offering to teach—for a consideration—his method of curing cancer. Dr. Jones claimed to cure 80 per cent. of all cases of cancer that he treated. In his letters to Ohio physicians he gave the name of Dr. C. S. Carr of Columbus, Ohio, as a reference. Carr was Peruna's advertising expert and ran a little medical mail-order concern of his own as a side line. Carr also published a freakish publication known as the *Columbus Medical Journal*, in which periodical Eli G. Jones told about his "cures" for cancer, and numerous other things and in which the Ensign Remedies Company advertised and to which W. S. Ensign contributed. Of course Dr. Jones was a member of the "National League for Medical Freedom" when that institution was in existence. According to a character sketch published in the *Truth-Teller*, Dr. Jones "has at different times practiced Allopathic, Eclectic, Homeopathic, Physio-Medical and Biochemical medicine." We can easily believe it.

LORA C. LITTLE: Mrs. Little, who seems to have had much to do with the organization of the "League," apparently hailed from the Pacific coast, where she was a traveling lecturer whose business it was to create sentiment against vaccination. Mrs. Little contributes prolifically to the "League's" house-organ, the *Truth-Teller*. In addition to being "Secretary" of the American Medical Liberty League, Mrs. Little was also "Secretary" and "Official Organizer" of the "Central Health Committee of the State of Illinois." There was the usual proportion of names of chiropractors and osteopaths on the letterheads of the official stationery of the "committee." This "committee," too, solicited funds—"for the purpose of securing medical liberty in the new Illinois constitution"—and made a special plea that the persons circularized should help secure, for a delegate to the Constitutional Convention, the nomination and election of Frederick A. Freeark, a Chicago lawyer who would "stand to the last ditch for our principle." Mr. Freeark's name appeared later as one of the "directors" of the "American Medical Liberty League." He was not elected.

DOCTOR: I teach physicians (by mail) my method of treating cancer, tumors, malignant growths, both external and internal. This method of treatment has stood the test of nearly forty years' practice.

I have a record of permanent cures of genuine cancer made fifteen to twenty-four years ago, and there has been no return of the disease. I want some good, reliable physicians who are willing to learn and are ambitious to "do things."

The best of references to physicians and patients. Address for further particulars,

ELI C. JONES, M.D.,
85 Bayard St., New Brunswick, N. J.

In this advertisement (nearly as large again in the original) published some years ago, Eli C. Jones described his mail-order course in curing cancer.

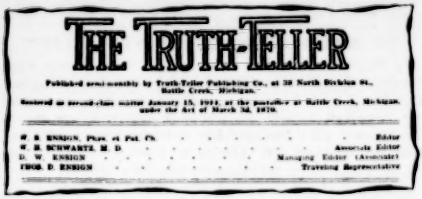
D. W. ENSIGN, Battle Creek, Mich.: Mr. Ensign was "Business Manager" and is now "Managing Editor" of the *Truth-Teller*. Enough said.

J. H. GREER, Chicago: Dr. Greer was graduated in 1875 by the Bennett Medical College, then an eclectic institution. For many years he conducted the "Harvard Medical Institute" in Chicago and specialized in genito-urinary work. In 1910 the United States immigration officials on the Canadian border

wrote for information regarding J. H. Greer, stating that a number of aliens had received Greer's advertisements and sought entry into the United States for the purpose of treatment. Some of these aliens sent to the immigration service letters which they had received from Greer, together with some of Greer's advertising matter. Greer, it seemed, issued a booklet entitled "A Peep at the Mysteries of Nature" whereby he drummed up trade. Greer also urged some of his prospective mail-order patients to purchase his book "A Physician in the House." As Greer put it:

"If you cannot come and see me, treat yourself. This you can do with the aid of my book 'A Physician in the House.' Get a copy of it, study it carefully, and apply it exactly and watch your pains and aches vanish like an ugly dream at dawn."

According to a prospectus of this book. "It opposes medical fads of all kinds, and makes uncompromising WAR ON VACCINATION, and the use of ANTITOXIN." Furthermore, it was



THE TRUTH-TELLER

Published semi-monthly by Truth-Teller Publishing Co., at 30 North Division St., Battle Creek, Michigan.

Entered as second-class matter January 15, 1912, at the postoffice at Battle Creek, Michigan, under the Act of March 3d, 1879.

W. S. ENSIGN, Phys. et Pat. Ch. . . . . Editor
W. B. SCHWARTZ, M. D. . . . . Associate Editor
D. W. ENSIGN . . . . . Managing Editor (Associate)
FRED. D. ENSIGN . . . . . Traveling Representative

It will be noticed that the *Truth-Teller* seems to be a family institution.

said to contain "Valuable INFORMATION for the MARRIED." Greer claimed that he did not guarantee cures "except in surgical cases, such as variococele, hydrocele, hernia, fistula, hemorrhoids, and stricture, etc."

ENSIGN'S CURE FOR BASHFULNESS, ETC.

W. S. ENSIGN, "Phys. et Pat. Ch." Battle Creek, Mich.: Mr. Ensign is Editor of the *Truth-Teller* and, with Mrs. Little, apparently an important factor in the American Medical Liberty League. Presidents, vice-presidents and treasurers seem to change, as do also some of the directors, but through all W. S. Ensign and Lora C. W. Little continue as "Editor" of the official organ and "Secretary" of the organization, respectively. W. S. Ensign for some years has been doing a mail-order business in Ensign Remedies. The Ensign Remedies, according to Ensign, are good for whatever ails you. Apparently, there are about one thousand of them and they are known by numbers. Ensign therapy is a comparatively simple study.

A booklet issued by the Ensign Remedies Company lists all "Diseases and Their Cure." These are arranged alphabetically from "Abdomen," "Abortion" and "Abscess" through "Ecchymosis," "Eclampsia," "Eczema" and "Iritis," "Irritability," "Itch" to "Worms," "Wrinkles" and "Writers' Cramp." It is all very easy. For Peritonitis, take "748A and B"; for Alcoholism, "Topers should use No. 17"; for Appendicitis, "Use No. 758A and B for the acute attack"; for Diphtheria, "No. 675A and B is our specific treatment. . . . Do not use anti-toxin." Should you have Atrophy of the Optic Nerve, take "No. 521A and B"; for Cataract, No 504A and B" are indicated. Yellow Fever calls for "No. 1066A and B," and Angina Pectoris for "342F." Bright's Disease is cured with "854A and B," but be sure you have the figures right as "No. 857A and B" is for Floating Kidney. For Lockjaw try "No. 34" and for Locomotor Ataxia, "No. 260A and B." "No. 1019A and B" are for Housemaid's Knee.

But the Ensign Remedies are good for more than physical ailments; "in the absolute cure of diseases of the mind, nothing equals the Ensign Remedies." Are you troubled with "Bashfulness," take "No. 186A and B"; do you see "Animals or Reptiles" (presumably of the pre-Volstead era) try "No. 187A and B." For "Dullness and Stupidity, "No. 189 A and B."; for "Disappointment in Love, No. 192A and B." For mere "Laziness, Lack of Ambition, No. 196A and B"; should you have a "Desire for Light and Company" take "No. 197A."

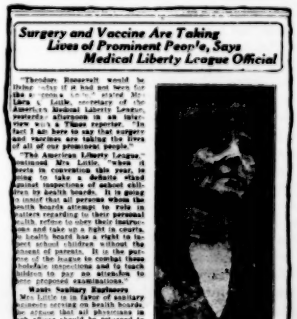
A few years ago the state officials of Michigan sent for some of Ensign's various cures and analyzed them and published the results in the official bulletin: "Fakes and Frauds." Ensign's "Appendicitis Cure" was reported to show on analysis sugar 100 per cent.; Ensign's "Pneumonia Cure" was another 100 per cent. sugar product, while Ensign's "Hay Fever Cure" had the same composition. The Michigan authorities unkindly called attention to the fact that while these remedies sold at $1.00 each, their estimated cost was less than 1/10 of a cent. It is only fair to state, however, that since these analyses were made the price of sugar has gone up.

J. W. GRIGGS, Minneapolis, Minn.: Mr. Griggs, was, if he is not still, vice-president of the "Anti-Vaccination League of America."

THE STATE VICE-PRESIDENTS

The "League" also has "State Vice-Presidents." In 1920 forty-five states were represented; in 1922 this list had dwindled to thirty-six. This doubtless is an index of the waning interest in the "League." It would consume too much space to take up the various individuals whose names appear as state vice-presidents and publish the details on file regarding these persons. However, it will not take much space to give a brief sketch as revealed by the Propaganda files of the State Vice-President of California, Dr. George Starr White.

GEORGE STARR WHITE, M.D., F.S.Sc. (Lond.), Los Angeles, Calif.: White, who was the "Second Vice-President" of the Allied Medical Associations in 1918, was graduated in 1908 when he was forty-two years old, by the New York Homeopathic Medical College and Hospital. He seems to have been one of the proponents of Albert Abrams' "spondylotherapy" and of Fitzgerald's "zonetherapy," etc., and in 1915 it was announced that he would give one week courses to physicians in "Spondylotherapy" at Chicago, Kansas City and Denver, respectively. In May, 1915, White was arrested in Chicago



Surgery and Vaccine Are Taking Lives of Prominent People, Says Medical Liberty League Official

"Theodore Roosevelt would be living today if it had not been for [illegible]," stated Mrs. Lora C. Little, secretary of the American Medical Liberty League, yesterday afternoon in an interview with a Times reporter. "In fact I am here to say that surgery and vaccines are taking the lives of all of our prominent people."

"The American Liberty League," continued Mrs. Little, "when it meets in convention this year, is going to take a definite stand against inspections of school children by health boards. It is going to insist that all persons whom the health boards attempt to rule in matters regarding to their personal health refuse to obey their instructions and take up a fight in courts. No health board has a right to inspect school children without the consent of parents. It is the purpose of the league to combat these compulsive inspections and to teach children to pay no attention to these proposed examinations."

Wants Sanitary Engineers

Mrs. Little is in favor of sanitary engineers serving on health boards, but argues that all physicians in such offices should be refused to give practices.

"I will admit," said Mrs. Little, that the health boards in some of the small towns have some degree of humanity, but some of the [illegible] should be [illegible] part of the people should be [illegible]

MRS LORA C. LITTLE

Reduced reproduction of part of a news story in a Davenport (Ia.) paper relative to Mrs. Little's appearance before the chiropractors. Mrs. Little was reported as stating that "practically all newspapers are under the control of . . . 'the medical trust.'"

and fined $100 and costs for practicing medicine without a license. Dr. White's specialty seems to be picturesquely known as "Bio-Dynamo-Chromatic-Diagnosis." This is described by one of its enthusiastic adherents as "Diagnosis by Sympathetic Vagal-Reflex." To obtain the "Sympathetic Vagal-Reflex" it seems the patient must face east or west and have his bare abdomen percussed until a dull area is located. The patient is then faced north or south and again percussed. Then, it seems, different colored lights are thrown on the patient, the location of the areas of dulness being determined meanwhile. A combination of ruby and blue light "will

cause a reflex in cases of gonorrhea," a "green light will cause a reflex in cases of liver or gallbladder trouble," while the color for carcinoma is orange red! During the height of the influenza epidemic White took a flier in nostrum exploitation, putting on the market "Valens Essential Oil Tablets," which were for "Gripping the Flu out of Influenza," and were also said greatly to benefit or cure incipient tuberculosis, hay-fever, asthma, and "catar" (White affects simplified spelling). The letters "F.S.Sc., Lond.," after Dr. White's name carry with them an air of erudition and mystery that is well worth what they cost. They mean "Fellow of the Incorported Society of Science, Letters and Arts of London, Ltd." The "Fellowship" is held by not a few "patent medicine" exploiters in the United States. It costs one guinea!

Here, then, we have brief sketches of those individuals who were mainly instrumental in bringing into existence the "American Medical Liberty League." The facts brought out are sufficient to permit the physician and the intelligent layman properly to evaluate the activities of this organization, which professes to have for its main object the protection of the public. The "American Medical Liberty League," like its prototype, the "National League for Medical Freedom," will flare, sputter—and go out!

Correspondence

THE CASE OF WILLETTA HUGGINS

To the Editor:—Now that Professor Jastrow has so ably disposed of the case of Willetta Huggins by stating that the medical profession has the "will to believe," there remain a few other questions to be disposed of.

How does it happen that her case was diagnosed by the psychologic department of Wisconsin as "almost a moron"? Do any of the physicians who saw her in Chicago or Evanston think her a moron?

How does it happen that the psychologic department of Northwestern University has no instrument fine enough to determine her threshold of feeling?

How does it happen that she distinguished blue, yellow and green in a mixture of blue and yellow that to a normal eye appeared green only?

How does it happen that she distinguished between the streaks of pink and green feldspar? Her vision would seem to be abnormally acute instead of being, as every one admits, much below par since early childhood, if Professor Jastrow's explanation is correct.

If she distinguishes light rays of different wave length by the sense of smell, how can she be expected to distinguish between light rays in the dark where there are no light rays?

Lastly, has not Professor Jastrow heard how the psychologic department of Cornell, and the rest of the faculty for that matter, were so taken in by an exposition of Freud and his theories, given by an agricultural student who had not heard of Freud a week before, that they kept him talking an hour and answering questions for a longer time, and were so enthusiastic over his exposition that they had him repeat the lecture? It really seems as if the medical profession had no monopoly of "the will to believe."

G. W. Boot, M.D., Evanston, Ill.

THE DEATH OF JOHN SHELL

To the Editor:—Fakes die hard, especially a fake which a veracious press is interested in keeping alive. I exposed the John Shell "the oldest man in the world" fake, in a magazine article, in the New York *Sun* two years ago. I showed then, through the census records, that Shell was less than 100. According to these records, which I obtained through the courtesy of Hon. S. L. Rogers, director of the census, Shell's age in 1860 was given as 37. In 1870 his age was 48. In 1880, 58; in 1890, 67. In 1900 his age was 78, his birthday being given as May, 1822. I visited him in November, 1919. At that time I tried to verify the age, and saw his oldest son, his great-grandson, his father-in-law, who was his nearest neighbor and knew him for more than fifty years, his lawyer of thirty years ago, an ex-judge who stopped at Shell's house in the early eighties, a physician who treated him the preceding winter, and the present circuit judge. All agreed that Shell was about 100. His son and great-grandson said he was less than 100. The details of the scheme by which the exploiters of the old man made several thousand dollars by exhibiting the senile dement as the oldest man in the world have no medical interest aside from the production of an obsession through suggestion.

I. L. Nascher, M.D., New York.

DO AMERICAN INDIANS HAVE CANCER?

To the Editor:—In The Journal, July 8, Dr. Joseph Rilus Eastman discusses interestingly the subject of malignant growths. I wish, however, to comment on his statement that our American Indians do not have cancer. Here in the Southwest I have known fairly well one tribe of Indians. They number about 500. During my residence of three years among them, three full-blood Indian men died of cancer, respectively, of the lips and mouth, of the throat and of the penis. For the last eighteen months at Tucson I have had charge of another group of about 500 Indians. During this time one of them, a woman of pure Indian extraction, died of cancer which destroyed the right orbit and adjacent tissues. It seems to be the custom not to perform necropsies on Indians, and I believe that few, if any, have been performed. If any considerable number of necropsies were performed, perhaps there would be disclosed occasionally a deep seated cancer.

C. G. Andrews, M.D., Tucson, Ariz.

LETTER ON THE DEATH OF KEATS

To the Editor:—The following extract from the letter of Joseph Severn, dated Rome, Jan. 11, 1821, written in the sickroom of John Keats (whom Severn was nursing in his last illness) may prove of interest as showing how the Italian medical authorities viewed tuberculosis a hundred years ago:

> News was brought me the other day that our gentle landlady had reported to the police that my friend was dying of consumption. Now their law is — that every individual thing, even to the paper on the walls in each room the patient has been in, shall, without reserve, be destroyed by fire, the loss to be made good by his friends. This startled me not a little, for in our sitting room where I wanted to bring him, there is property worth about £150, besides all our books, etc.—invaluable.

J. R. Clemens, M.D., St. Louis.

Mosquito Destruction by a Plant.—According to investigations carried out by Dr. Arturo Caballero, professor of botany in the University of Barcelona, in the summers of 1919-1920, *Stegomyia*, *Culex* and *Anopheles* larvae die in any water where the plant known as *Chara foetida* is found. The larvae die quicker if they are young and those fresh from the egg do not last over an hour. These laboratory experiments were later tried out in the field with the species *Chara foetida*, *Chara contraria* and *Chara hispida*. Caballero suggested at first that the larvae died because of the film formed on the surface of the water by the plant in question, but further experiments showed that they also died if the film was removed. He suggested, therefore, that the death of the larvae is produced by some toxic substance segregated by the *Chara* plants. The plant spreads rapidly in the water and seems to last indefinitely. Dr. Caballero has published several articles on this subject, one of them in the *Revista de Higiene y Tuberculosis*. One of his early papers was recently reprinted by the Mexican Health Department.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MECHANICAL BUST DEVELOPERS

To the Editor:—In catalogues of medical and surgical supplies one sees listed among standard cupping apparatus so-called "bust-developers," consisting of a glass portion designed to fit the organ, with a suction apparatus at the other end. I assume that the supposed function of this apparatus is to bring about, through hyperemia, a permanent enlargement of the female breast. For many years I have been investigating the general biology of secondary sexual characters of the organism, and I should like to know whether there is any valid published evidence that the pieces of apparatus mentioned above can or do bring about any such a result as that suggested. It seems to me on biologic grounds very doubtful. I shall be greatly obliged if you will give me references to any pertinent literature. If my assumption as to what these pieces of apparatus are made (and presumably sold) for is wrong, will you please tell me what their use and effect is? P.

ANSWER.—There is apparently no scientific evidence to indicate that the devices described actually induce growth of the organs concerned. Rhythmic irritations of the lactating breast, as from a breast pump, or by massage, will unquestionably stimulate the circulation of the breast with a possible increase of the flow of milk. There is, however, no procedure that will produce a localized development of fat, which is essential, if the procedure is to develop the breast, for plumpness of a breast lies in the fat contained therein. In view of the lack of evidence as to the value of such devices, their sale must be placed in the same category as the purveying of inert and useless remedies.

ULCERS DUE TO CHROMIC ACID

To the Editor:—I am called on to treat ulcers which originate in the men employed in producing dry colors in a nearby dye industry. The ulcers are caused by chromic acid or chromium and its salts. We shall be grateful if you can assist us. SUBSCRIBER.

ANSWER.—Lesions of the skin due to chromium are well recognized industrial dermatoses. The following brief account of them is taken almost verbatim from Dr. Prosser White's work, Industrial Dermatoses:

All workers in free chromic acid and the chromates suffer after a time, unless the precautionary regulations are strictly enforced. The chronic chrome dermatoses are: (1) the subcuticular vesicle; (2) the sore, or hole; traumatic or follicular; (3) the granuloma, and (4) the scar. Chrome sores are usually situated at the roots of the nails, the creases of the knuckles, and the hairy parts of the backs of the hands and forearms. The skin between the fingers shows large numbers of skin-colored, painless, subepidermic, pinhead elevations. The web between the thumb and first finger is particularly susceptible to ulceration, if any crack is present. Previous laceration of the cuticle or the mouth of the follicles, however, always determines the site of the ulcer, which may be found on the wrist or arm, the penis or the groin.

A chrome hole always starts and takes its size and shape from the chip, crack or opening in the skin in which it begins. If the epidermis has been stripped, the sore retains the shape of the original wound (linear, oblong, etc.), but as the hole deepens, the edges and angles become thickened and rounded. If, on the other hand, it begins from a follicle or a broken papule, it will most likely remain circular. The sore gradually deepens, widens, and soon extends to the derma. Deep penetration, with great thickening of the edge and less surrounding inflammation, is characteristic. The chrome hole is indolent and conical. The size of the chrome hole ordinarily encountered varies from that of a hempseed to that of a bean. When neglected, they become complicated by severe pyogenic infection, and large sloughs have been recorded. Men can work in very weak solutions of chrome without showing any ill effects.

The duration of a chrome sore, if not very deep, is about three weeks, provided the sufferer abandons work and is no longer in contact with the material. If he should ignore the trouble and continue his duties, it will last indefinitely. Chrome holes are essentially a chronic condition, their onset being slow and insidious, and recovery equally tardy. They always leave scars, which are usually quite distinctive.

Another lesion observed in these "hands" is the septic granuloma. It is prevalent in many occupations. It results from a low and slow form of inflammation or irritation, usually the feeble but repeated activity of infecting organisms. In these cases there may be little skin destruction, or the wound closes prematurely and the inflammatory exudates are confined or only partially absorbed. Edema, small-celled infiltration, and debris remain to form a diffuse, nodular, half-pea sized and shaped projection.

The only method of handling these cases successfully is to prevent them, and prophylaxis by measures to prevent contact with chromic acid and its salts should be required in works where laborers may be exposed to these salts.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.
MASSACHUSETTS: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.
NEW HAMPSHIRE: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

District of Columbia April Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, April 8, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 7 passed and 4 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1921)	80.5, (1922) 85.1
Howard University	(1920)	81.6, (1921) 77.8, 86.3, 88.7
University and Bellevue Hospital Medical College	(1921)	81.1
FAILED		
Howard University	(1919)	73, (1920) 68.1, 70
College of Physicians and Surgeons, Boston	(1921)	73.8

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Howard University	(1914)	New Jersey
Johns Hopkins University	(1917)	Maryland
Tufts College Medical School	(1914)	Virginia
University of Texas	(1916)	Missouri

Colorado January Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 3, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates who took the physicians and surgeons' examination, 3 passed and 5, including 1 osteopath and 1 undergraduate, failed. Nineteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1917)*	76.3
Eclectic Medical Institute	(1908)	75
University of Berlin	(1919)†	88.1
FAILED		
St. Louis College of Physicians and Surgeons	(1918)	39.4
University of West Tennessee	(1918)	66.5
Jenner Medical College	(1903)	65.5
Undergraduate		68.4
Osteopath		72.6

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Bennett College of Eclectic Medicine and Surgery	(1906)	Illinois
Hahnemann Medical College and Hospital of Chicago	(1887)	Illinois
Rush Medical College	(1915)	Wisconsin
Kansas Medical College, Topeka	(1903)	Oklahoma
University of Kansas	(1920)	Kansas
Harvard University	(1888)	Mass.
Tufts College Medical School	(1912)	Mass.
University of Michigan Medical School	(1902)	Michigan
Minneapolis College of Physicians and Surgeons	(1900)	Minnesota

Washington University	(1907), (1911)	Missouri
Columbia University	(1896), (1911)	New York
Cornell University	(1916)	New York
Cincinnati College of Medicine and Surgery	(1886)	Kentucky
Eclectic Medical Institute	(1892)	Nebraska
Jefferson Medical College	(1891)	Missouri
University of Texas	(1917)	Texas
University of Toronto	(1892)	New York

* Information received does not show graduation from any medical college.
† Graduation not verified.

Book Notices

La Lithiase Biliaire. Par A. Chauffard. Second edition. Paper. Price, 20 francs net. Pp. 247, with illustrations. Paris: Masson et Cie, 1922.

In thirteen chapters, which are really in the form of lectures, Chauffard covers fairly well the subject of gallstones —their pathogenesis, symptoms, complications, diagnosis and treatment. He emphasizes the rôle of cholesterinemia in their production, laying less stress than many on infection. He analyzes minutely the various types of pain caused by the stones dwelling especially on the areas of cutaneous tenderness. He devotes an interesting chapter to the elimination of gallstones by way of the intestine. He gives detailed advice as to treatment, telling which cases he regards as suited for surgery, which for hydrotherapy and which for the more strictly medicinal management. The book is not a complete textbook that one would consult as an encyclopedia of information on all phases of the subject, but it touches on nearly all the essential clinical features of gallstones, is rich in illustrative clinical cases, and is written in a style so lucid as to make the book not only readable but also entertaining.

Les Bases Actuelles du Problème de la Tuberculose. Par Fernand Bezançon, Professeur à la Faculté de Médecine. Paper. Price, 7 francs. Pp. 200. Paris: Gauthier-Villars et Cie, 1922.

This is one of a series of popular science works published under the title, "Science et Civilisation." It successfully presents to the general public the subject of tuberculosis as viewed by the best minds of the medical world. Instruction in all phases of the tuberculosis problem is needed in France; in fact, the author, in the preface, gives as the raison d'être of the treatise the need of acquainting his public with the facts about tuberculosis, the modes of infection, means of transmission, prophylaxis and treatment. The book is addressed to physicians, nurses, social workers and laymen in general. Attention is called to the seriousness of the problem from a social standpoint, and its importance as a national menace is made clear.

Internal Secretion and the Ductless Glands. By Swale Vincent, I.L.D., D.Sc., M.D., Professor of Physiology in the University of London. Second edition. Cloth. Price, $8.50 net. Pp. 422, with 104 illustrations. New York: Longmans, Green & Co., 1922.

This book is a very helpful contribution to the difficult subject of endocrinology by an active and competent experimental worker in this field. In this edition the portions dealing with clinical phases of the subject have been increased considerably, thus making the little volume more useful to medical students and practitioners. Many of the illustrations are photographs of patients suffering from diseases of the organs of internal secretions.

The chapters on the gonads, the thyroid, the parathyroids, the suprarenals, the pancreas, the hypophysis, and the specific interrelationship of these glands are the most satisfactory. In the chapters on the gastric and intestinal mucosa the author seems unfamiliar with the recent American investigations showing that the "secretin" of Bayliss and Starling and the "gastrin" of Edkins are artefacts or drugs, and not physiologic substances or hormones. The author has deliberately left out all references to the original literature, a fact that diminishes the value of the book. In the handling of experimental and clinical facts and speculations, the author is usually critical and conservative. He says: "If I have not been so optimistic and expansive in the treatment of certain topics as other writers on the same subjects, it is because I am convinced that a surer road to sound knowledge lies in the direction of rigid criticism and a reasoned skepticism."

The Physical Growth of Children from Birth to Maturity. By Bird T. Baldwin, Director and Research Professor of Educational Psychology. Cloth. Price, $3.75. Pp. 411, with 24 illustrations. Iowa City: University of Iowa.

This is the first of the University of Iowa Studies in Child Welfare, and is issued from the Iowa Child Welfare Research Station. Nothing so complete or exhaustive on the subject has appeared in American literature, and it is doubtful whether any such complete report has appeared in a single volume in the literature of any other country. The methods of examination are given in detail, and the results are amply illustrated by tables and charts Every phase of physical growth is taken up, even to strength tests of the different portions of the body. An appendix gives a large bibliography.

A Manual of Pharmacology. By Walter E. Dixon, M.A., M.D., B.Sc., Sometime Professor of Materia Medica and Pharmacology at King's College. Fifth edition. Cloth. Price, $6 net. Pp. 468, with 92 illustrations. New York: Longmans, Green & Co., 1921.

This book is adapted primarily to the student in England; it is not suitable for use in America, as the U. S. Pharmacopeia names and the activities of the Council on Pharmacy and Chemistry are ignored. As is common with many textbooks published in Great Britian, proprietary names are used frequently to the exclusion of scientific terminology. Hexamina (the British Pharmacopeia name for hexamethylenamine, U. S. P.) and the proprietary "Urotropin" are employed interchangeably. The unscientific name Antifebrin, long discredited in America, is used by Dixon for acetanilid. The revision of the book has been extensive, but at times carelessness is evident. One notices that credit is not given others for research or statements, nor are references furnished. It is the purpose of the author that the therapeutics in the manual shall serve only to illustrate the pharmacology; he has carefully refrained from creating a treatise on therapeutics or materia medica. The material is presented in the commendable form of group treatment. The work also includes the drugs brought out during the war, but is not as critical in their evaluations as it might be. Tracings, chemical formulas and diagrams abound. The subject-matter is presented in a direct, pleasing style, and the book work is excellent.

Tuberculosis in Infancy and Childhood. Lectures Delivered at the Children's Hospital, Philadelphia, under the Auspices of the Philadelphia Pediatric Society. By J. Claxton Gittings, M.D., Professor of Pediatrics in the Graduate School of Medicine, University of Pennsylvania; Frank Crozer Knowles, M.D., Professor of Dermatology in the Jefferson Medical College, and Astley P. C. Ashhurst, M.D., Associate Professor in Surgery, School of Medicine, University of Pennsylvania. Cloth. Price, $5. Pp. 273, with 22 illustrations. Philadelphia: J. B. Lippincott Company, 1922.

This work discusses the subject completely from all clinical standpoints, and contains much valuable practical information. One of the striking features is a complete chapter on skin manifestations of tuberculosis, a greatly desired and needed contribution, and one which comes rather as a surprise to the ordinary reader. One could wish that many more illustrations had been added to the medical and dermatologic sections. The detail of physical examination and findings in the discussion of the pulmonary involvements is especially exhaustive, as one would expect who has knowledge of the previous work of one of the authors.

"Try for Links."—H. Le Chatelier, the professor of chemistry at the Sorbonne, Paris, was recently presented with a gold medal on the completion of his fifty years of teaching and of service to France. In his words of acknowledgment he addressed the young chemists present saying, "Try for links, only links. Do not try to forge a whole cable at once. Discoveries are made as one can, not as one wants to make them. The fall of the Titans trying to scale Olympus is being constantly repeated, as witness the last years of Sir William Ramsay and Schutzemberg, for instance."

Medicolegal

Improper Evidence as to Agency of Nurse in Hospital

(Deming Ladies' Hospital Association v. Price (U. S.), 276 Fed. R. 668)

The United States Circuit Court of Appeals, Eighth Circuit, in reversing a judgment for damages obtained by the plaintiff, Mrs. Price, on account of her having been burned by metal hot water vessels while she was unconscious after an appendectomy, says that the case went to the jury on the issue of whether a nurse named Miss Schilling, alleged to have been negligent in the matter, was an agent or employee of the hospital. That agency was sought to be established by what Miss Schilling herself had said and done. The husband of the plaintiff was permitted to answer certain questions with reference to what Miss Schilling did in connection with the operation on his wife, and the facts that she was in attendance during the operation in the operating room and attended Mrs. Price in her own room after the operation. Mr. Price then testified that neither he nor Mrs. Price ever employed Miss Schilling as a nurse; and that he did not receive a bill from her for services. He said that he saw her working in the operating room, suggested to her that she seemed to be pretty busy, and received the reply: "Yes; I am on general, and it keeps me busy." He was then asked: "Did you learn afterward, from observation and experience, what 'on general' in a hospital meant? What does it mean?" The objections to this question should have been sustained. The agency of Miss Schilling was not apparent; and it not only was not admitted, but was also denied. Her statement was not shown to have been ratified. Moreover, the testimony introduced, even if it had been admissible, would not have been sufficient to warrant the inference on the part of the jury that Miss Schilling was an agent or employee of the hospital. The court thinks too that, in any view of the case, the jury should have been given the requested instruction that the agency of Miss Schilling could not be determined by her statements and her conduct. There was also error, the court holds, in a refusal to give a requested instruction that the hospital was not liable because it was a charitable institution.

Immaterial Irregularities in Procedure of Board Not Reviewable

(Minaker v. Adams et al. (Calif.), 203 Pac. R. 806)

The District Court of Appeals of California, First District, Division 2, says that this was an appeal from a judgment of the superior court dismissing a writ of review and affirming all the proceedings of the board of medical examiners in revoking the appellant's license to practice medicine and surgery in the state. The action of the board was taken after a hearing, duly and regularly had, on a complaint charging the appellant with having been guilty of unprofessional conduct in procuring a criminal abortion. The appellant's contention was that, at the hearing, the board received considerable hearsay testimony and other evidence not admissible. Reliance was placed on the case of *Thrasher* v. *Board of Medical Examiners*, 185 Pac. 1006, because of its holding that hearsay evidence is inadmissible in a proceeding such as this one. However, the only function of the writ of review in this case was to determine whether the board exceeded its jurisdiction, and the sole question reviewable by the superior court on the proceedings before it and by this court on this appeal was whether the board exceeded its jurisdiction in making the order complained of. Conceding the fullest possible force and effect to the language of the Thrasher decision, and the consequent inadmissibility of some of the evidence received by the board in the instant case on the question of the pregnancy of the alleged pregnant woman at the time of her treatment by the appellant, there was, nevertheless, abundant proper evidence in the record that this condition existed. This was to be found in the testimony in the coroner's office of the surgeon who performed the necropsy, and in the testimony of a physician who examined the woman when she was taken to a hospital. This testimony eliminated any question that might arise, were there an entire absence of legal evidence in the record, as in the Thrasher case, and it conclusively established the jurisdiction of the board to make the order complained of. Under such circumstances, any irregularity in the method of procedure in the matter of the admissibility of improper evidence will not be reviewed on a writ of review. Wherefore, the judgment appealed from is affirmed.

Burden on Plaintiff in Action for Malpractice

(Sweat v. Foster (Ga.), 111 S. E. R. 66)

The Court of Appeals of Georgia, Division 1, says that this was a renewal suit brought within six months of the dismissal of the original suit by the plaintiff's attorney. The petition as amended stated, among other things, that on Sunday evening the petitioner's wife was taken ill. The petitioner immediately called at the home of the defendant physician for the purpose of securing his services, but did not see the defendant until Monday morning, when the defendant visited the petitioner's wife, examined her, stated that she was in labor, and gave her treatment. After about an hour, the defendant left, promising to return at 1 p. m., but did not do so until about 5 p. m., after the petitioner had been to his house at about 4 p. m., and urged him to return to look after the patient. On that visit he remained about thirty minutes, continued the treatment, and stated that the child would be born in an hour. The defendant did not return again, and the petitioner charged that so leaving was an act of gross carelessness and neglect of the patient, who died the next day. The petitioner also alleged that his wife was not in labor at all at the time the defendant waited on and treated her, but that her illness was gastritis. What was designated as Paragraph 11 of the petition read: "Petitioner alleges and charges that the death of his wife was due to the unskilful diagnosis and treatment by defendant as a medical practitioner, and to the gross carelessness and neglect in his treatment and handling of said wife's illness." The defendant interposed a general demurrer to the petition, and a special demurrer to Paragraph 11, asking that said paragraph be stricken out because the allegations thereof were vague and indefinite and were conclusions of the pleader.

It is well settled, the court goes on to say, in affirming a judgment for the defendant, that, in a suit for damages alleged to have been caused by the malpractice of a physician, the burden is on the plaintiff to show a want of due care, skill or diligence, and also that the injury resulted from the want of such care, skill or diligence. Conceding, but not deciding, that the petition in the instant case established a want of due care, skill or diligence on the part of the defendant, it was not shown that this negligence was the cause of the death of the plaintiff's wife, Paragraph 11 of the petition having been properly stricken out on the special demurrer interposed. The trial court did not, therefore, err in dismissing the suit on general demurrer.

Award to Physician for Sprain Held Excessive

(Lebrecht v. United Railways Co. (Mo.), 237 S. W. R. 112)

The Supreme Court of Missouri, Division No. 2, in reversing a judgment for $12,500 damages that was rendered in favor of the plaintiff, a physician, for a sprain of the sacroiliac joint, says that the sudden starting and the closing of the door of one of the defendant's cars, while he was in the act of boarding it, caused him to fall and suffer the injury in question. He was not confined to his bed immediately; but, the pain increasing, he went to a hospital, where he remained ten weeks. An extension splint and weights were used to pull his leg and take the pressure away from his hip. He used crutches for three months after he left the hospital. For a while, he was not able to resume the practice of medicine, with the exception of seeing a few patients at his house.

It was more than four months after the accident before he went to the office. Prior to the accident, he had earned $6,000 or $7,000 a year. He was unable to state what his earnings had been subsequent to his injury without referring to his books, but was permitted to approximate his earnings by stating that, until four or five months before the trial, which occurred about two years after his injury, his income had been about 50 per cent, of what it was prior to the accident. His physician's fee was $150, and his hospital bill a like amount. He was 61 years of age. The physician who attended him at the hospital said the condition caused intense pain; that one so affected is troubled a long time with it, but he could not state definitely that the injury was permanent. In practicing his profession, the plaintiff would not be able to make visits as easily as before. A physician who testified for the defendant stated that he made an examination of the plaintiff about nine months after the accident, and found nothing objectively wrong with him, but, on manipulation of the parts on the left side, in the region of the back and of the pelvis, he complained of pain. This instruction was given the jury:

> If the jury find for the plaintiff, they should assess his damages at such sum as they may believe from the evidence will be fair compensation to him: first, for any pain of body or mind which the jury may believe from the evidence he has suffered or will hereafter suffer by reason of his injuries and directly caused thereby, including permanent injury (if any); second, for any loss of earnings in his profession which the jury may believe from the evidence he has sustained or will hereafter sustain by reason of his injuries and directly caused thereby, and, third, for any expense necessarily incurred for medical attention, not exceeding the sum of $150 for hospital bills and $150 for medical care, which the jury may believe from the evidence the plaintiff has incurred by reason of his injuries and directly caused thereby. You will render a verdict, if you find for the plaintiff, in an aggregate sum.

This instruction, the court holds, was not subject to objection, if based on proof sustaining same; but in the instant case it was unauthorized in the absence of such proof, the testimony not being sufficient to sustain an instruction in regard to damages based on proof of permanent injury. As has been said, in effect, in numerous cases: consequences which are contingent, speculative, or merely possible are not to be considered. To justify a recovery for apprehended future consequences, there must be such a degree of probability of their occurring as amounts to a reasonable certainty that they will result from the original injury. To say of a thing that it is permanent means that it will continue regardless of a contingency or fortuitous circumstance. Furthermore, under the evidence, the assessment of damages was excessive, and, without additional evidence, it would authorize the reversal and remanding of this case. On this account, therefore, and because the trial court in the instruction on the measure of damages authorized the jury to take into consideration the permanency of the plaintiff's injury in the absence of evidence to sustain the same, the cause was reversed and remanded.

Power to Defer Judgment Revoking License

(Shoults v. Alderson et al. (Calif.), 203 Pac. R. 809)

The District Court of Appeal of California, First District, Division 2, says that the appellant, who had been licensed to practice as a "doctor of naturopathy," was, in May, 1918, served with complaint and citation under the provisions of the medical practice act. The complaint charged that he had been guilty of unprofessional conduct under said act in affixing to his name certain letters indicating that he was entitled to practice the system or mode of treating the sick or afflicted for which he was not licensed. The citation required him to appear before the board for a hearing, June 25. He filed an answer in which he admitted having used the abbreviations "M.D." after his name on his professional cards and stationery and on a sign in front of his office, but alleged that he did so because he had received the degree from a legally chartered medical college of the state of Illinois and he believed he had a right to use this degree after his name; that he had never practiced or held himself out as practicing any art of healing other than "naturopathy." At the hearing, he appeared by counsel and in person and admitted the use of the suffix complained of; whereupon he was found guilty of unprofessional conduct as charged in the complaint. His attorney stated that he was willing to discontinue the use of the suffix to his name and asked that the board consider that fact and dismiss the proceedings. The matter was then discussed and the suggestion was made that judgment be deferred, or that he be put on probation for thirteen months. The motion was that he be put on probation for thirteen months. When later it was brought to the attention of the board that he had violated his promise and was using the suffix "M.D." on his stationery, prescriptions, and labels for bottles, the secretary of the board wrote to him stating that further hearing in the matter of the revocation of his license would be placed on the calendar for June 24, 1919. On that date, he appeared before the board in person and represented by an attorney, and he admitted that he had used stationery on which was printed his name with the suffix "M.D." Testimony was also given by another witness of further violations by the appellant, in this particular, of the medical practice act. On such a showing, the board voted unanimously to revoke his license. In inflicting this penalty, the board was merely pronouncing the deferred judgment which it was empowered to render at the first hearing; and this court finds no grounds for the reversal of the judgment of the lower court, which affirmed the proceedings of the respondents acting as the board of medical examiners. The board acquired jurisdiction of the appellant and of the subject-matter by the procedure prescribed in the medical practice act, and it had power to continue its hearing, and finally to inflict the penalty.

The appellant contended that, because the chairman, in stating the motion, did so inaccurately, his language was to be looked to for the sense of the motion carried by the board, and that the motion carried by the board was a judgment placing the appellant on probation for thirteen months, which would be a penalty unauthorized by the medical practice act. But the court thinks that the power of the board to inflict such a penalty on one found guilty of unprofessional conduct was not a question presented on this appeal; that the motion carried by the board was that judgment be deferred for thirteen months, which was the motion seconded, and heard by all members of the board who were present, it being plain from the entire discussion that such was the motion intended to be carried and that was carried. This motion was not a final order or judgment; it was merely an order deferring the final judgment for a specified time. Assuredly, under the general powers given to the board by the medical practice act, it would have implied power to continue its hearings from day to day or for any longer period which seemed to it convenient or desirable under the circumstances. Such power would be indispensable to the successful functioning of the board in the method provided in the act, and would, consequently, be implied, if not expressed therein. Furthermore, the appellant expressly consented to such continuance.

A hearing was denied by the Supreme Court of California.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. A. Bern Hirsh, 71 W. 94th St., New York, Secretary.

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Missouri Valley Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

June, 1922, 3, No. 6

Physiology Basis of Future Gynecology. G. G. Ward, New York City.—p. 573.
*Ovarian Function. W. P. Graves, Boston.—p. 583.
*Application of Metabolism Studies of Fetal and Neonatal Periods of Life. H. Bailey, New York City.—p. 591.
*Teratoma of Ovary. M. F. Porter, Fort Wayne, Ind.—p. 600.
*Congenital Malformation of Female Genitalia. P. J. Reel, Columbus, Ohio.—p. 604.
*Method of Keeping Fallopian Tubes Open. W. T. Kennedy, New York City.—p. 607.
Is Conservative Obstetrics to Be Abandoned? W. C. Danforth, Evanston, Ill.—p. 609.
*Device for Aseptic Intrauterine Manipulations. F. C. Hendrickson, Cincinnati.—p. 617.
*Treatment of Cardiac Failure During Pregnancy. H. E. B. Pardee, New York City.—p. 620.
*New Hydrostatic Bag for Induction of Labor. G. H. Lee, Galveston, Texas.—p. 628.
*Unusual Case of Extrauterine Pregnancy. J. W. Riley, Oklahoma City.—p. 630.
Pelvic Hematocele from Causes Other Than Ectopic Pregnancy. J. W. Bovée, Washington.—p. 634.

Ovarian Function.—Graves sums up his paper by stating that ovarian therapy is valuable in treating the hot flushes of the artificial and natural menopause. It has an uncertain but nevertheless unequivocal effect on certain dysmenorrheas. The same may be said of its influence in cases of amenorrhea, delayed menses, clotting, menstrual headaches, etc. An increasing number of cases seem to prove that it may stimulate fertility. Even at its best the action of ovarian extract is uncertain and excepting in occasional brilliant instances rather feeble. Outside its specific relationship to the reproductive functions, the influence of ovarian substance on the rest of the bodily organism is slight.

Prevention of Premature Births.—In order to prevent premature births, Bailey says, the care of the prospective mother must include a reduction of her manual work during the last month of pregnancy and the insistence on a dietary regimen composed largely of carbohydrates. The high death rate in the neonatal period must be looked on as preventable to a certain extent and provision of the energy requirement of the new-born is the first step in that direction. Bailey suggests that in maternity hospitals the new-born be turned over to the pediatrician. Obstetricians have been carrying this appalling death rate in the neonatal period with little concerted effort toward its reduction, because it is relinquished to men better trained in pediatrics.

Teratoma of Ovary.—Several points of interest are stressed by Porter in his recital of a case: First, the enormous size of the ovarian cysts without the patient's knowledge or suspicion that anything serious was wrong with her. Second, complete functioning of the ovaries, including pregnancy, occurring in the presence of bilateral ovarian teratomas, child carried beyond term, born naturally but dead. Third, development of a paratyphoid infection during the puerperium.

Absence of Uterus and Vagina.—Reel's patient was a young woman presenting in every respect typical feminine characteristics in external physical development while the internal genital tract revealed an absence of one tube, the uterus and the vagina. That rudimentary structures found on the right side at times endeavored to undergo some menstrual change seems logical since she has been entirely free from attacks of periodic pain in this region since their removal by operation.

Keeping Fallopian Tubes Open.—Kennedy uses Cargile membrane hardened in alcohol for at least forty-eight hours, threading it through the fallopian tubes and the cavity of the uterus to keep these tubes open both into the uterine cavity and into the peritoneal cavity. The membrane is flexible and strong, nonirritating to the contact tissues and is slowly absorbed, giving all raw surfaces time to heal and allowing this part of the genital tract to remain patent. He urges greater use of this membrane.

Device for Aseptic Intra-Uterine Manipulations.—Hendrickson has developed an apparatus and a method which he believes makes possible an almost perfect asepsis in performing any of the ordinary obstetrical manipulations except the cutting operations. There need be no fear of infecting a parturient woman such as by a manual removal of adherent placenta, even though the woman should have a suppurating bartholinitis.

Treatment of Cardiac Failure During Pregnancy.—The important feature of a patient with heart disease during pregnancy, Pardee says, is the degree of cardiac failure. If this is slight the disease is of little importance. Even with a moderate degree of failure it will be possible for the child to be born if the mother is allowed to take a risk which is not so great as sometimes stated. The first attack of severe decompensation can usually be recovered from with proper treatment, unless the attack should occur during labor. With proper observation and prompt operation severe decompensation should not occur during labor. Abdominal section is the operation of choice in the emergency, provided a low forceps cannot be done. Ether anesthesia started by chloroform is a better anesthetic for these patients than gas-oxygen. Oxygen inhalations from a mask are helpful to clear up a persistent cyanosis. Without severe cardiac failure or after recovery from it, most patients can be carried through to term or to an induced labor during the eighth month. During labor, one should watch for a pulse over 95 or respiration of more than 25 per minute, precordial discomfort, dyspnea, cough, and not let these little signs become big before putting an end to the labor. In treating lesser grades of failure during pregnancy, the patient must rest enough to spare the heart from overstrain, but this may not necessitate rest in bed for more than a short time. Digitalis should be given in doses sufficient to insure an effect. With this treatment Pardee feels sure it will be possible to diminish the present mortality of about 25 per cent. for severe cases and 10 per cent. for all cases to a figure which is less disquieting.

New Hydrostatic Bag for Induction of Labor.—Lee claims that his bag combines the two desirable features of the Barnes and the Champetier de Ribes and Voorhees bags; i. e., dilating the cervical canal and supplying an efficient foreign body within the lower zone of the uterus to excite uterine contraction.

Retained Extra-Uterine Pregnancy.—Riley's patient had the usual signs of pregnancy and felt the fetal movements. These, without the usual evidence that accompanies tubal rupture, suddenly ceased between seven and one-half and eight months of the pregnancy. Outside of the presence of an abdominal tumor, she enjoyed good health, and one year subsequently, gave birth to a full term, living child. Her pregnancy and labor were normal in every way. She subsequently gave birth to four children, two of whom were born dead. There was no history of any abnormality during these pregnancies or labors. On admission to the hospital, she complained of frequent urination and the presence of an abdominal tumor, the size of a croquet ball, firmly attached to the left of the uterus, causing considerable pain on examination. It was fixed and immovable. It was rather irregular and hard like a myoma. No crepitus was elicited. Rectal examination was very painful and the mass felt irregular to the examining finger. At the operation the mass was found to be in the left broad ligament. On cutting into the mass it proved to be a cavity from which a very foul odor emanated. The sac contained the bones of the fetus and a large amount of foul smelling, milky colored fluid. The bones of the fetus were entirely clean of all tissue. It measured 17 inches in height, and apparently represents the size of a fetus at seven and one-half or eight months' pregnancy

American Journal of Physiology, Baltimore

June, 1922, **61**, No. 1

Amino-Acids in Nutrition. V. Nutritive Value of Edestin (Globulin from Hemp Seed). Cystin and Lysin as Growth-Limiting Factors in That Protein. B. Sure, Fayetteville, Ark.—p. 1.

*Studies on Visceral Sensory Nervous System. XIII. Innervation of Cardia and Lower End of Esophagus in Mammals. A. J. Carlson, T. E. Boyd and J. F. Pearcy, Chicago.—p. 14.

*Blood Anticoagulant Obtained from Body Tissues; Its Chemical Nature and Its Manner of Action. C. A. Mills, G. Mynchenberg, G. M. Guest and S. Dorst, Cincinnati.—p. 42.

Action of Ultraviolet Rays on Starfish Eggs. R. S. Lillie and M. L. Baskervill, Cleveland.—p. 57.

Action of Ultraviolet Light on Egg Albumin in Relation to Isoelectric Point. J. H. Clark, Baltimore.—p. 72.

Physiologic Rôle of Intestinal Mucosal Movements. C. E. King, L. Arnold and J. G. Church, Nashville, Tenn.—p. 80.

Pseudoparadoxic Pupil Dilatation Following Lesions of Afferent Paths. J. Byrne, New York.—p. 93.

Latent Periods in Reciprocal Action of Antagonistic Muscles. J. M. D. Olmsted and W. P. Warner, Toronto.—p. 106.

*Origin and Conduction of Cardiac Impulse. VIII. Permanent Rhythm Following Destruction of Sino-Auricular Node. J. A. E. Eyster and W. J. Meek, Madison, Wis.—p. 117.

*Id. IX. Sinoventricular Conduction. J. A. Eyster and W. J. Meek, Madison, Wis.—p. 130.

I. Determination of Plasma and Hemoglobin Values After Unit Hemorrhages Under Controlled Experimental Conditions. E. B. Carrier, F. W. Lee and G. H. Whipple, San Francisco.—p. 138.

II. Simultaneous Determinations of Plasma and Hemoglobin Volumes. Influence of Fluids by Mouth and Vigorous Exercise. F. W. Lee, E. B. Carrier and G. H. Whipple, San Francisco.—p. 149.

Mechanism of Regulation of Intra-abdominal Pressure. H. C. Coombs, New York.—p. 159.

Height of Center of Gravity in Man. M. I. Croskey, P. M. Dawson, A. C. Luessen, I. E. Marohn and H. E. Wright, Madison, Wis.—p. 171.

Effect of Plethora and Variations in Venous Pressure on Diastolic Size and Output of Heart. W. J. Meek and J. A. E. Eyster, Madison, Wis.—p. 186.

Innervation of Cardia.—A method is described by Carlson et al. permitting continuous recording of the tonus and contractions of the cardia in acute experiments and in animals provided with a permanent gastrostomy and esophageal fistula.

Blood Anticoagulant in Body Tissues.—Whereas normal lung tissue yields a globulin which is a very active blood coagulant, lung tissue dried at room temperature and thoroughly extracted with benzene at this same temperature yields a globulin possessing a very strong anticoagulant action. This anticoagulant globulin appears to contain no phosphorus in its protein molecule. The globulin fraction from various tissues was found by Mills et al. to be capable of yielding this anticoagulant protein, there being no apparent specificity even for widely divergent species. The strongest anticoagulant for any blood was obtained from turtle liver. The anticoagulant action of the globulin is readily destroyed and an active coagulant formed by the proper addition of cephalin. The conclusion is justified that this protein owes its anticoagulative action to its high cephalin combining power.

Origin of Cardiac Impulse.—The experiments reported by Eyster and Meek comprise a study of the changes in cardiac rhythm for periods of days or weeks following ligation or excision of the sino-auricular node in dogs. Disturbance of the normal rhythm, as manifested by a reduction in cardiac rate, a reduction in the As-Vs interval and frequently other changes, invariably results. The facts obtained tend to substantiate the paramount importance of the sino-auricular node as the seat of origin of the cardiac impulse in the normal animal. They further indicate the ability of this structure to function, even though subject to considerable injury and partial isolation, if sufficient time for recovery is allowed. A study of the cardiac acceleration preceded by muscular exercise and by vagus paralysis under atropin administration, before and after excision of the sino-auricular node, lends further evidence to the view that it is on this structure that the vagus produces normally its greatest chronotropic influence and through which the normal acceleration in muscular exercise is in large part brought about.

Sinoventricular Conduction.—New experimental evidence is presented by Eyster and Meek which they believe tends to substantiate the view previously stated, that conduction of the excitation from its origin in the sino-auricular node to the right atrium and auriculoventricular node respectively, occurs normally by separate paths. This evidence is the occurrence of auriculoventricular dissociation in dogs after partial isolation of the sino-auricular node.

American Journal of Roentgenology, New York

June, 1922, **9**, No. 6

Mode of Radiation on Carcinoma. J. Ewing, New York.—p. 331.

*Case of Epithelioma of Cornea. D. Y. Keith and J. P. Keith, Louisville, Ky.—p. 337.

A Simple Pass Box. C. B. Reed, New York.—p. 340.

Underlying Principles in Radiotherapy of Malignant Tumors. H. Holfelder, Frankfort-on-the-Main, Germany.—p. 341.

*Pyelitis of Pregnancy. F. M. Hodges, Richmond, Va.—p. 352.

*Failures After Gastro-Enterostomy Turned to Success by Knowledge Furnished by Roentgen-Ray Examination. A. H. Pirie, Montreal, Can.—p. 358.

Rickets: Review of Recent Literature. R. G. Giles, Boston.—p. 360.

High Tension Electric Shocks in Roentgenologic Practice. W. F. Hemler, Washington, D. C.—p. 365.

New Immobilizing Device. C. M. Ming, Okmulgee, Okla.—p. 370.

Standardization of Measurement of Tuber Potential. F. Rieber, San Francisco.—p. 371.

Method for Roentgen-Ray Demonstration of Nasolacrymal Passageways. D. M. Campbell, J. M. Carter and H. P. Doub, Detroit.—p. 381.

Epithelioma of Cornea.—The Keiths believe that the application of radium to tumors of the cornea or the bulbar conjunctiva far excels operative procedure. In their case they used 42 mg. hours to each half of the eye. There have been no ill effects.

Pathology of Pyelitis of Pregnancy.—The true pathology of the condition is graphically demonstrated by the pyelograms made by Hodges, and consists mainly of dilatation of the renal pelvis and dilatation and kinking of the ureter. The dilatation varies greatly. The lesser and medium grades will entirely recover, but the more severe grades with atony of the pelvic musculature only partially recover. The colon bacillus is usually the infecting organism, but others may occasionally be primary or engrafted on the colon infection. The early diagnosis and treatment of pyelitis of pregnancy may be the means of avoiding serious, if not irreparable, damage to the kidney. Pelvic drainage and lavage is of marked value, adding little, if any, risk when properly done.

Cause of Vomiting After Gastro-Enterostomy.—Vomiting continuing for weeks after a gastro-enterostomy, Pirie states, is usually due to retention of food in the stomach. The gastric delay is due to the stoma being placed too far from the pyloric end. Roentgen-ray examination not only may disclose the cause, but provide the remedy. The first case of vomiting after every meal for three months following gastro-enterostomy was cured by lying on left side after meals. Second similar case was cured by lying on left side and rolling over a pillow on stomach.

Annals of Surgery, Philadelphia

June, 1922, **75**, No. 6

Tumors of Breast. C. H. Peck and W. C. White, New York.—p. 641.

*Papillary Cystadenoma of Male Breast. V. C. David, Chicago.—p. 652.

*Improved Method of Skin Grafting. A. D. Parce.—p. 658.

Serum Treatment of Anthrax Septicemia. D. Symmers, New York.—p. 663.

*Peritonitis as Complication of Prostatectomy. H. J. Vanden Berg and W. J. Butler, Grand Rapids, Mich.—p. 668.

Sciatic Hernia. J. E. Summers, Omaha, Neb.—p. 672.

Spontaneous Lateral Ventral Hernia. J. K. Holloway, Philadelphia.—p. 677.

Low Transverse Incision in Operations on Thyroid. W. S. Schley, New York.—p. 686.

Extracranial Aneurysm of Internal Carotid. N. Winslow, Baltimore.—p. 688.

Case of Bullet Wound of Femoral Artery and Vein Successfully Treated by Ligation of Artery and Vein and Extirpation of Injured Segment. G. P. LaRoque, Richmond, Va.—p. 705.

Value of Dakin's Solution in Treatment of Acute and Chronic Osteomyelitis. A. O. Wilensky, New York.—p. 708.

Spiral Fracture of Tibia and Fibula. J. A. Caldwell, Cincinnati.—p. 717.

Volvulus of Sigmoid. G. L. Hays, Pittsburgh.—p. 724.

*Value of Blood Pressure in Acute Cerebral Compression. J. Y. Malone, St. Louis.—p. 732.

Papillary Cystadenoma of Male Breast.—David's patient was 82. The tumor in the breast was first noticed fifteen years previously. Twelve years ago the tumor and nipple were removed. One year later there was a recurrence. The

general health of the patient was good. The microscopic diagnosis was recurrent papillary cystadenoma of the ducts of the breast. David urges that in such cases the entire breast be removed.

New Method of Skin Grafting.—The technic of the method employed by Parce consists in the usual preliminary preparation and the use of the same instruments that one would employ if he were doing a simple Thiersch graft plus the addition of sterile dental modeling composition. With two basins of sterile water—one hot and one cold—conveniently at hand, the dental composition is first softened in the hot water and then molded over the surface to which the graft is to be applied and finally placed in the cold water to harden. A full thickness autoplastic graft through the dermis into the subcutaneous plexus, but devoid of fatty tissue, is removed with a razor in the ordinary manner, turned inside out over the impressioned surface of the composition and held under tension against it by means of fine catgut sutures used to approximate the free edges of the graft across the blank surface of the composition. It may take several grafts before the surface of the mold is covered in the desired fashion. The skin edges about the area to which the graft is to be applied are slightly undercut so that the margins of the composition with the graft overlying them will slip under these edges. The graft is now placed in position and adjusted, this adjustment being made more accurate by applying a compress soaked in hot saline to the composition for a moment, slightly softening it, when firm pressure will permit such readjustment as is necessary in the composition after the skin has been applied over it. The skin margins surrounding the area made free by undercutting are now sutured with fine catgut to those portions of the graft in apposition to them, which step serves the double purpose of holding the graft in position and at the same time helps to maintain tension on it. A copious dressing with a firm bandage is then applied over the whole area and left undisturbed for a period of eight to ten days, when the sutures holding the graft to the mold are cut, the edges of the composition gently lifted so as not to disturb the graft, and finally the whole mold is removed, leaving the epidermized surface beneath.

Peritonitis Complicating Prostatectomy.—Vanden Berg and Butler report a case of prostatectomy complicated by a fatal peritonitis due probably to soiling of the peritoneum following its accidental opening in enlarging the suprapubic wound. They failed to find a similar case on record.

Blood Pressure in Cerebral Compression.—Clinically, blood pressure compensation following increased intracranial pressure Malone states is a valuable criterion of the degree of cerebral compression when the pupils react to light, but is of no service when they do not. A sluggish or absent reaction of the pupils to light indicates a grave prognosis and no time should be lost in relieving the cerebral compression. A good rule is not to decompress a patient if the blood pressure is falling or is below normal. This is evidence that the last stage of compression has been reached and that the medullary centers are exhausted and can no longer compensate.

Archives of Internal Medicine, Chicago

June, 1922, **29**, No. 6

Pigment Metabolism and Regeneration of Hemoglobin in Body. G. H. Whipple, Rochester, N. Y.—p. 711.
*Ochronosis; with Study of Additional Case. B. S. Oppenheimer and B. S. Kline, New York.—p. 732.
Aids to Basal Metabolic Rate Determinations. H. S. Newcomer, Philadelphia.—p. 748.
*Nature of So-Called "Capillary Pulse." E. P. Boas, New York.—p. 763.
*Etiology and Development of Glomerulonephritis. E. T. Bell and T. B. Hartzell, Minneapolis.—p. 768.
*Biochemical Studies in Fatal Case of Methyl Alcohol Poisoning. I. M. Rabinovitch, Montreal.—p. 821.
*Reversed Rhythm of Heart. M. H. Kahn, New York.—p. 828.
*Paroxysmal Rapid Heart Action with Special Reference to Roentgen-Ray Measurements of Heart In and Out of Attacks. S. A. Levine and R. Golden, Boston.—p. 836.
Study in Experimental Diabetes. H. E. Landes, L. E. Garrison and J. J. Moorhead, Chicago.—p. 853.

Ochronosis.—The diagnosis of ochronosis was made by Oppenheimer and Kline in their case (the forty-first on record) because of the bluish discoloration of the cartilages of the ears and skin of the axillae; the pigmentation of the sclerae and the excretion of a dark urine becoming black on standing. In addition the patient had a deforming arthritis of the spine and larger joints and a mitral endocarditis: complications frequently present in ochronosis. Examination of the urine was repeatedly negative for alkapton body. The pigment obtained from the urine, from a costal cartilage and that from the prostate of the case gave the reactions for melanin. The pigment from these three sources had similar characteristics. The chemical findings are in accord with the belief that ochronosis is dependent on a disordered metabolism of phenol derivatives. As in the cases previously reported, the cartilages (costal, tracheal, bronchial, auricular and xyphoid), and fibrocartilages (intervertebral disks) are deeply pigmented (bluish black). Large stony masses of bluish pigmentation are found in the prostate and prostatic urethra. The kidneys show extensive pigmentation. The endocardium, intima of the aorta and coronary arteries, skin and sclerae are less intensely pigmented. The pigment is not deposited in any quantity in intact intima and endocardium but in areas of degeneration in these structures, however, macroscopic deposits occur. Diffuse ochronotic pigment is present in albuminous masses (renal casts) and concretions (corpora amylacea of prostate). Fine pigment granules are present in the epithelium of proximal convoluted tubules, and coarser granules are present in the cells of the ascending loops of Henle, distal convoluted tubules and the collecting tubules. The pigment is predominatingly diffuse in the matrix of the cartilage and fibrocartilage and when associated with albuminous masses and concretions. It is predominatingly granular in perichondrium, periosteum, tendons, fascias, connective tissue and in certain renal cells. It is present in diffuse and granular forms in injured and degenerated areas. The histologic picture in the kidney sections suggests excretion of the pigment by the cells of the proximal convoluted tubules. The picture likewise suggests a partial reabsorption of the fine pigment by the cells of the loops of Henle, distal convoluted tubules and collecting tubules, and a transformation of the pigment into a more granular form.

Nature of Capillary Pulse.—Boas claims that the so-called "capillary pulse" is not a manifestation of a pulsation of the capillaries, but is due to an exaggerated pulsation of the arterioles and possibly of the venules of the subpapillary plexus of the skin. In view of this fact it would be well to discard the term "capillary pulsation" and to speak of the systolic flushing of the skin.

Studies of Glomerulonephritis.—Thirty-two cases of acute glomerulonephritis were studied by Bell and Hartzell. In many of these cases death was due to extrarenal causes and early glomerular lesions are available for study. Degenerative, exudative and proliferative types of inflammation occur in the glomeruli. Proliferative changes are chiefly responsible for permanent glomerular damage. Acute glomerulonephritis is nearly always due to some acute infectious process, usually a streptococcal infection. The bacteria gain access to the blood and it is probable that the injury is produced by the direct action of their bodies on the glomerular endothelium. An occasional case of acute glomerulonephritis passes into the chronic form; but the great majority of chronic cases do not begin as frankly acute nephritis. Acute glomerulonephritis is linked with the chronic form by numerous intermediate cases. Glomerular lesions in chronic kidneys correspond to healing or healed stages of acute glomerulitis. Old epithelial crescents are common, and disintegrating polymorphonuclear leukocytes are frequently found in the closed glomerular capillaries and in the partially atrophied tubules. In a few chronic cases acute and subacute glomerular lesions were found, indicating acute exacerbations. In chronic glomerulonephritis many glomeruli are obliterated completely and those persisting show permanent closure of a part of the capillary network. Function is carried on by damaged glomeruli, and is depressed not only because of reduction in the total number but also because of the reduced capillary network in those that persist. The progressive nature of chronic glomerulonephritis is apparently due, in part, to repeated acute exacerbations. All forms

of glomerulonephritis are due directly to bacterial invasion of the glomeruli; and the various clinical and pathologic types depend on the degree and extent of the permanent glomerular injury.

Methyl Alcohol Poisoning.—In a fatal case of methyl (wood) alcohol poisoning studied by Rabinovitch changes had occurred in the renal and other functions as evidenced by variations from the normal chemical composition of the blood. These, in themselves, disregarding other well known factors, may account for the actual cause of death. Methemoglobin played no important part in the production of the cyanosis noted. Methyl alcohol could be detected in the tissues examined six days after the ingestion of the drug.

Reversed Rhythm of Heart.—Kahn emphasizes the distinction that should be made between the terms "reversed mechanism" and "reversed rhythm" of the heart. The "term "reversed mechanism" should be confined to express a reversal of the mechanism of impulse formation and conduction. The term "reversed rhythm," on the other hand, does not attempt to interpret the direction of stimulus conduction. It expresses only a time relationship between the ventricular and auricular contractions, i. e., the ventricular beat immediately precedes the auricular beat. This includes not only the cases of reversed mechanism, but also those cases in which the mechanism is normal, yet in which the ventricular contraction is delayed and, therefore, is grouped together with the following auricular contraction. In these cases, the auriculoventricular node discharges its impulse, in point of time, ahead of the sinus node, yet without reversal of the mechanism.

Roentgen-Ray and Blood Pressure Studies of Heart Action.—Roentgen-ray examinations and blood pressure studies were made by Levine and Golden on eleven patients with paroxysmal rapid heart action. Five had paroxysmal auricular tachycardia, three had paroxysmal ventricular tachycardia, one had paroxysmal auricular flutter and two had paroxysmal auricular fibrillation. Observations were made during the attacks and while the heart was beating normally. It was found that in eight cases no appreciable dilatation of the heart occurred, in two it was definite but slight and in one it was considerable. These results indicated that in ten out of eleven cases it would have been impossible to detect with any certainty by percussion and palpation a change in the size of the heart. In seven of the cases blood pressure readings showed that the systolic pressure was apt to fall and the diastolic pressure to rise, resulting in a low pulse pressure which in rare instances became very small, i. e., 8 mm. This low pulse pressure may explain some of the symptoms that occur during the severe attacks. It is suggested that the amount of dilatation and the decrease in pulse pressure are dependent on three factors; the duration of the attack, the rapidity of the ventricles during the attack and the state of health of the heart before the attack occurs. In several cases a leukocytosis, even as high as 20,000, and a temperature of 100 F. developed with the attacks and quickly subsided as the heart returned to normal.

Arkansas Medical Society Journal, Little Rock

June, 1922, **19**, No. 1

Value of Hot Springs Baths in Treatment of Chronic Malarial Infections. W. T. Wootton and G. E. Tarkington.—p. 1.
Cesarean Delivery; Report of Cases. G. E. Cannon, Hope.—p. 2.
Chronic Patient. H. Thibault, Scott.—p. 4.
Disease. J. T. Clegg, Siloam Springs.—p. 6.

Georgia Medical Association Journal, Atlanta

May, 1922, **11**, No. 5

Kidney Study. J. P. Proctor, Athens.—p. 169.
Disorders of Stomach, Few Facts, Fallacies and Figures. C. W. Roberts, Atlanta.—p. 174.
Precaution in Goiter Surgery. T. C. Thompson, Vidalia.—p. 178.
How to Restore Muscle Power in Paralytic Conditions. T. Toepel, Atlanta.—p. 182.
Gallbladder Disease. W. H. Lewis, Rome.—p. 184.
Gastric and Duodenal Ulcer. J. C. Johnson, Atlanta.—p. 186.
Size, Shape and Position of Stomach in Diagnosis. C. D. Cleghorn, Macon.—p. 190.
Subphrenic Abscess. L. W. Grove, Atlanta.—p. 192.

Indiana State Medical Association Journal, Ft. Wayne

March, 1922, **15**, No. 3

Functional Diseases of Nervous System in Soldiers and Civilians. C. G. Beall, Fort Wayne.—p. 75.
Foreign Bodies Within Respiratory Tract. M. H. Krebs, Huntington.—p. 78.
Group Medicine Diagnosis. L. L. Solomon, Louisville, Ky.—p. 85.
Physician. Duty Toward Psychologic Development of Childhood and Youth in Home. F. B. Wynn, Indianapolis.—p. 90.
Dangers and Duties of Hour. H. A. Hare, Philadelphia.—p. 93.

April, 1922, **15**, No. 4

Biliary Infections. J. W. Sluss, Indianapolis.—p. 109.
Diagnostic Uses of Duodenal Tube. G. W. McCaskey, Fort Wayne.—p. 114.
State Medicine. C. S. Bosenbury, South Bend.—p. 117.
Old Indiana Book on Medicine. J. N. Hurty, Indianapolis.—p. 122.
Physician. How May He Grow Old Gracefully? F. B. Wynn, Indianapolis.—p. 124.

Johns Hopkins Hospital Bulletin, Baltimore

June, 1922, **33**, No. 376

*Evolution of Human Races in Light of Hormone Theory. A. Keith, London, Eng.—p. 195.
*Relation of Nutrition to Tooth Development and Tooth Preservation. E. V. McCollum, N. Simmonds and E. M. Kinney and C. J. Grieves, Baltimore.—p. 202.
*Experimental Rickets. XX. Effects of Strontium Administration on Histologic Structure of Growing Bones. P. G. Shipley, E. A. Park, E. V. McCollum, N. Simmonds and E. M. Kinney, Baltimore.—p. 216.
*Carcinoma of Cervix Uteri. K. H. Martzloff, Baltimore.—p. 221.
Capillaries of Bone Marrow of Adult Pigeon. C. A. Doan, Baltimore.—p. 222.
Effect of Slight Increase of Temperature on Bacteriostatic Power of Gentian Violet. J. W. Churchman, New York.—p. 227.
*Experimental Rickets. XXI. Experimental Demonstration of Existence of Vitamin Which Promotes Calcium Deposition. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 229.

Evolution in Light of Hormone Theory.—Keith states that a study of the growth disorders reveals the fact that the hormone systems, centered in the pituitary and suprarenals, are organized on a functional basis. Hormone systems represent automatic growth mechanism which, like all living qualities, are hereditary and variable. Hormones represent the elements of an automatic system for the control of growth. For this reason new characters do not appear at the end of a developmental stage but early in the growth of the fetus. New characters appear first in utero; later they become fixed as a new character in the adult stage.

Relation of Nutrition to Tooth Development.—A study of the gross maxillary and dental defects in 220 rats on defective and deficient diets was made by E. V. McCollum et al. It is shown that the internal structure of the skeleton of the rat can be changed at will by varying the ration which the animals received. Some of the faulty diets studied produced rickets often of an exaggerated type, others caused osteoporosis. Still others resulted in the development of the peculiar lesion, which has been called osteosclerosis. A study of the effects of these diets on the skeleton would indicate that the growth of the skeleton was dependent on at least three substances: (1) an organic substance present in certain fats which is not identical with the antixerophthalmic fat soluble A; (2) calcium and (3) phosphorus. The studies of diets which contain varying percentages of calcium and calcium phosphate show that the absolute amount of either ion in the diet is of relatively little importance as compared to the ratio which exists between the two. That is, normally calcified bone is produced without regard to the reduction or diminution of either calcium or phosphate in the food, provided the content of the other ion is proportionately augmented or depressed.

Effect of Strontium on Bone Growth.—When strontium replaces calcium in an otherwise satisfactory diet (2.2 per cent. strontium carbonate). Shipley et al. state it stimulates growth and causes the bones to develop the picture of "strontium" rickets. The anatomic lesions described by Lehnerdt as induced by the administration of strontium to dogs, were not due to the stronium alone, but to a diet very poor in calcium and high in phosphorus, and deficient in the factors fat soluble A or a second dietary essential which is

associated with certain fats, notably cod liver oil. Cod liver oil does not enable the animal to compensate for a faulty diet containing strontium.

Carcinoma of Cervix Uteri Cured.—The case reported by Martzloff is one of very early carcinoma of the cervix, a discharge having been present only three months. Examination revealed nothing grossly abnormal. A panhysterectomy was performed in August, 1921, and today the patient feels perfectly well. The patient was 55 years of age. Her menopause occured five years ago.

Vitamin Promotes Calcium Deposition.—Oxidizing cod liver oil for from twelve to twenty hours at 100 C. by blowing air through it was just as effective in curing rickets in rats as untreated oil. The antirachitic effect of cod liver oil is not due, therefore, to its content of fat soluble A, but to some other factor which the oil contains. The existence of this substance which exerts its effects in so remarkable a manner on the growing bones, is now as firmly established as is the existence of any of the three hitherto recognized vitamins. From its mode of action, and the very small amounts of it which are required to exert its directive influence on metabolism, it must, E. V. McCollum et al. believe, be classed with this group of essential nutritive principles.

Journal of Biological Chemistry, Baltimore

June, 1922, **52**, No. 2

Colorimetric Method for Determination of Small Amounts of Magnesium. A. P. Briggs, St. Louis.—p. 349.
Digestibility of Proteins in Vitro: Chemical Nature of Nutritional Deficiencies of Arachin. D. B. Jones and H. C. Waterman, Washington, D. C.—p. 357.
*Determination of Globulins in Blood Serum. R. R. Henley, Washington, D. C.—p. 367.
Determination of Total Oxygen-Combining Power of Blood in Van Slyke Apparatus. C. Lundsgaard and E. Moller, Copenhagen, Denmark.—p. 377.
Nutritional Requirements of Baby Chicks: Further Study of Leg Weakness in Chickens. E. B. Hart, J. G. Halpin and H. Steenbock, Madison.—p. 379.
*Method for Direct Determination of Uric Acid in Urine. S. R. Benedict and E. Franke, New York City.—p. 387.
Threshold of Ketogenesis. R. M. Wilder and M. D. Winter, Rochester, Minn.—p. 393.
Rôle of Cystine in Dietary Properties of Proteins of Cow Pea, Vigna Sinensis, and of Field Pea, Pisum Sativum. A. J. Finks, D. Breese Jones, and C. O. Johns, Washington.—p. 403.
Determination of Magnesium in Blood, Plasma and Serum. W. Denis, New Orleans.—p. 411.
Relation Between Endogenous Catabolism and Nonprotein Constituents of Tissues. H. H. Mitchell, W. B. Nevens and F. E. Kendall, Urbana, Ill.—p. 417.
Volatile Oil of Mentha Aquatica Linné; Occurrence of Pulegone. R. E. Kremers, Madison, Wis.—p. 439.
*Hydrogen Ion Concentration of Human Feces. C. S. Robinson, Lansing, Mich.—p. 443.
Studies of Autolysis: VIII. The Nature of Autolytic Enzymes. H. C. Bradley, Madison, Wis.—p. 467.
Possible Asymmetry of Aliphatic Diazo Compounds. II. P. A. Levene and L. A. Mikeska, N. Y.—p. 485.
Studies of Acidosis: XIX. Colorimetric Determination of Hydrogen Ion Concentration of Blood Plasma. G. E. Cullen, N. Y.—p. 501.
Comparison of Colorimetric and Electrometric Determinations of Hydrogen Ion Concentrations in Solutions Containing Carbon Dioxid. G. E. Cullen and A. B. Hastings, N. Y.—p. 517.
Modification of Clark Hydrogen Electrode Vessel to Permit Accurate Temperature Control. G. E. Cullen, New York.—p. 521.
Measurement of Buffer Values and Relationship of Buffer Value to Dissociation Constant of Buffer and Concentration and Reaction of Buffer Solution. D. D. Van Slyke, New York.—p. 525.

Determination of Globulins in Blood Serum.—The two methods described by Henley give results in practical agreement with those obtained by the Cullen and Van Slyke method but are, in some respects at least, less involved than the Cullen and Van Slyke method. Method 1 estimates the globulins by determining the nitrogen of the filtrate and by making the necessary calculations to determine the globulins by difference. Method 2 determines globulins by direct weighing.

Determination of Uric Acid in Urine.—The reagent employed by Benedict and Franke is arsenic phosphoric tungstic acid reagent and is prepared as follows: 100 gm. of pure sodium tungstate are placed in a liter pyrex flask and dissolved in about 600 c.c. of water; 50 gm. of pure arsenic acid are now added, followed by 25 c.c. of 85 per cent. phosphoric acid and 20 c.c. of concentrated hydrochloric acid. The mixture is boiled for about twenty minutes, cooled, and diluted to 1 liter. The reagent appears to keep indefinitely. A 5 per cent. solution of sodium cyanid, which should be prepared fresh once in about two months, is also used, and a standard solution of uric acid, acidified with hydrochloric acid, containing 0.2 mg. of uric acid in 10 c.c.

Hydrogen Ion Concentration of Feces.—The normal fecal reaction of apparently healthy men on mixed diets, Robinson found, lies between p_H 7.0 and 7.5 though temporary variations beyond this range may occur without giving rise to any unusual sensations on the part of the subject. The effects of some common laxatives on the fecal reaction were studied. The usual result is the production of an acid stool. The administration of the alkali, magnesium oxid, does not differ from the others in this respect but the fecal material passed after the cessation of the laxative action is unusually alkaline. The physiologic factor is the predominant one in influencing fecal reaction, no result being noticeable from the introduction of acidophilic bacteria into the intestine. The intestine apparently exerts a regulatory influence which prevents the development of acidity by micro-organisms. There is evidence that alkalinity in feces is also due to physiologic rather than biologic causes.

Journal of General Physiology, Baltimore

May, 1922, **4**, No. 5

Does Kinetics of Trypsin Digestion Depend on Formation of Compound Between Enzyme and Substrate? J. N. Northrop, New York.—p. 487.
Influence of Roentgen Rays on Properties of Blood. R. G. Hussey, New York.—p. 511.
Kinetics of Bioluminescent Reaction in Cypridina. I. Introduction. W. R. Amberson, Cleveland.—p. 517.
Id. II. Experimental Results. W. R. Amberson, Cleveland.—p. 535.
*Action of Curare, Atropin and Nicotin on Invertebrate Heart. A. J. Carlson, Chicago.—p. 559.
Effect of Temperature on Phototropic Response of Necturus. W. H. Cole, Lake Forest, Ill.—p. 569.
Effect of Cocain on Growth of Lupinus Albus. D. I. Macht and M. B. Livingston, Baltimore.—p. 573.
Studies on Regulation of Osmotic Pressure. II. Effect of Increasing Concentrations of Albumin on Conductivity of Sodium Chlorid Solution. W. W. Palmer, D. W. Atchley and R. F. Loeb, New York.—p. 585.
Equilibrium Condition Between Blood Serum and Serous Cavity Fluids. R. F. Loeb, D. W. Atchley and W. W. Palmer, New York.—p. 591.
Colloidal Behavior of Edestin. D. I. Hitchcock, New York—p. 597.
Elimination of Discrepancies Between Observed and Calculated P.D. of Protein Solutions Near Isoelectric Point with Aid of Buffer Solutions. J. Loeb, New York.—p. 617.
Electrical Charges of Colloidal Particles and Anomalous Osmosis. II. Influence of Radius of Ion. J. Loeb, New York.—p. 621.

Action of Curare, Atropin and Nicotin on Heart.—According to Carlson, curare, atropin and nicotin in mollusca and arthropods stimulate and paralyze the central nervous system and peripheral (visceral) ganglions, but do not paralyze the motor nerve endings to skeletal or visceral muscle. They stimulate and paralyze the denervated heart. They paralyze or block the cardio-inhibitory nerves, but not the cardio-accelerator nerves. In the Limulus heart these drugs act primarily on the heart ganglion, not on the heart muscle or the intrinsic motor nerve fibers.

Journal of Laboratory and Clinical Medicine, St. Louis

June, 1922, **7**, No. 9

*Focal Embolic Glomerulonephritis. M. Warwick, St. Paul.—p. 507.
*Rôle of Hexamethylenamin in Production of Hematuria. W. A. Bloedorn and J. E. Houghton, Annapolis.—p. 514.
Chronic Urticaria of Five Years' Duration Probably Due to Chronic Acidosis. G. W. McCaskey, Fort Wayne, Ind.—p. 534.
Studies in Postmortem Bacteriology: Value and Importance of Cultures Made Postmortem. A. S. Giordano and A. R. Barnes, Rochester, Minn.—p. 538.
Widal Technic Using Sterilized Cultures. R. Gilbert and A. C. Moore, Albany, N. Y.—p. 547.
Suggestions for Determination of Uric Acid in Blood. L. Bauman and L. M. Keeler, New York City.—p. 551.
Use of Open Delivery Tubes in Distillations When Determining Urea and Nonprotein Nitrogen in Blood. G. E. Youngburg, Buffalo.—p. 552.
*Method of Counting Cells in Cerebrospinal Fluid. C. F. Carter, Dallas, Tex.—p. 555.
What Are Atmospheric Moisture Requirements of Bacteria. N. Kopeloff and S. Morse, New York City.—p. 555.
Adapted Mask for Basal Metabolism Apparatus. P. B. Newcomb, Los Angeles.—p. 560.
Plea for Standardization of Training for Laboratory Technicians. G. B. Grant and E. R. Wilson, Los Angeles.—p. 562.

Making Collodium Sacs. N. Muskin and L. Siegel, New York City.—p. 564.
Liver Function. W. T. Vaughan, Richmond.—p. 565.
Pathogenicity of Bacillus Botulinus. V. C. Vaughan, Washington.—p. 570.
Cod Liver Oil in Rickets. V. C. Vaughan, Washington.—p. 571.

Focal Embolic Glomerulonephritis.—Ten cases of focal embolic glomerulonephritis are analyzed by Warwick. In all ten cases the heart was enlarged from 365 gm. (in a small female) to 860 gm., with an average of 515 gm. The mitral valve was involved alone five times; the mitral and aortic valves together four times, while the aortic valve alone was involved but once. The lesion consisted of vegetations which were sometimes accompanied by ulcerations of the valve leaflets. In five cases vegetations and ulcerations occurred together, but in the other five cases vegetations occurred alone, thus disproving the older idea that the endocarditis associated with focal embolic glomerulonephritis was usually of the "ulcerative" type. The vegetations varied markedly in appearance and position on the endocardium. The majority were fresh and friable while some were more firm and showed beginning calcification in certain areas. In some instances the vegetations were very numerous and extended over the auricular wall. In other cases, the vegetations were small and discrete and situated on the edges of the leaflets. One heart showed only two small vegetations on the mitral value and one large one on the aortic valve. In another case, yellowish white vegetations, associated with calcareous nodules, were found on the mitral valve only. In five cases in which blood cultures were taken either just before or just after death, *Streptococcus viridans* was present four times and *Streptococcus pyogenes* once. In one case *Streptococcus hemolyticus* was obtained from the blood stream, showing that streptococci other than *Streptococcus viridans* may be responsible for focal embolic glomerulonephritis. In all the cases of this series in which a history was available, the urine showed albumin, hyaline and granular casts, occasional leukocytes and persistent red blood cells, but in no case was gross blood present—a point of differentiation from cases of acute hemorrhagic nephritis. In all ten cases, the spleen was enlarged.

Rôle of Hexamethylenamin in Production of Hematuria.—Bloedorn and Houghton report five cases of hematuria, which developed among approximately 400 patients with mild influenza who received from 30 to 60 grains of hexamethylenamin a day. The hematuria appeared in from one to seven days following the administration of the drug. In an attempt to demonstrate an idiosyncrasy to hexamethylenamin in these patients, the drug was applied in varying dilutions to the slightly abraded skin of the forearm, and in each case a reaction consisting of redness, induration and the production of a raised area, was noted.

Method for Counting Cells in Cerebrospinal Fluid.—Carter uses the Levy counting chamber with double Neubauer ruling, this being the one in almost universal use for blood counting and Levinson's diluting fluid (methyl violet, 0.2 gm.; glacial acetic acid, 5 c.c. and water to make 100 c.c.). With a pipet (1 c.c.) equal parts of cerebrospinal fluid and diluting fluid (0.5 c.c. of each) are mixed. The total number of cells counted multiplied by two gives the total cells per cubic millimeter.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

June, 1922, **19**, No. 5

*Hemolytic Properties of Arsphenamin and Fifteen Allied Compounds. G. P. Grabfield, Boston.—p. 343.
Feeding Experiments on Tadpoles: Prostate Gland and Other Substances. J. M. Rogoff and W. Rosenberg, Cleveland.—p. 353.
Animal Calorimetry. XXI. Influence of Morphin on Heat Production in Dog. A. Chanutin and G. Lusk, New York.—p. 359.
Chronic Intoxications on Albino Rats. VI. Lead Carbonate. T. Sollmann, Cleveland.—p. 375.
*Improved Method for Using Phenoltetrachlorphthalein as Liver Function Test. S. M. Rosenthal, Baltimore.—p. 385.

Hemolytic Properties of Arsphenamin.—By means of a method described by Grabfield, the hemolytic activity of various samples of arsphenamin was found to vary in a general way as did the toxicity, when the latter depended on variations in the conditions of reduction of the nitro group to the amino group in the preparation of the sample. On standing or after shaking in alkaline solution, the hemolytic properties of a given sample decrease, often disappearing altogether. "Arsenoxid" is nonhemolytic. The sodium salts of various substituted phenylarsonic acids related to arsphenamin are nonhemolytic. Warming a sample of disodium arsphenamin to 55 C. decreases its hemolytic power. Warming the hydrochlorid causes comparatively little diminution of hemolytic power when tested after being changed to the disodium salt. The hemolytic power of dihydroxyarsenobenzene (in 1 per cent. solution as sodium salt) is nil, but the introduction of amino groups causes the resulting compounds to acquire hemolytic properties in direct proportion to the number of amino groups introduced. The antihemolytic action of arsphenamin is similar to that described for sodium arsenate and arsenite when tested against chemical hemolytic agents; none of these substances exert an antihemolytic action against rabbit hemolysin. The presence of serum inhibits hemolysis by arsphenamin.

Liver Function Test.—Phenoltetrachlorphthalein has been injected intravenously by Rosenthal and its subsequent concentration in the blood has been studied. In normal dogs there is an immediate rise to approximately 10 per cent., rapidly falling to only a trace or to complete disappearance within fifteen minutes. When the liver is damaged the amount of dye in the blood reaches from 15 to 30 or more per cent., and remains elevated for a prolonged period, 11 per cent. having been recovered almost two hours after injection. There is evidence that the curves obtained have paralled the degree of impairment of liver function, and it is believed that the method can be applied clinically as a quantitative test for liver function.

Journal of Radiology, Omaha

June, 1922, **3**, No. 6

Cancer of Lip Treated by Radiation or Combined with Electrocoagulation and Surgical Procedures. G. E. Pfahler, Philadelphia.—p. 213.
Duodenal Bulb Deformity in Relation to Symptoms and Chemistry of Gastric Juice. A. W. Crane, Kalamazoo, Mich.—p. 218.
Study of Hilus Pneumonias by Serial Radiographic Examination. L. R. Sante, St. Louis.—p. 221.
Radium and Roentgen Ray Therapy in Malignancy: Indications, Contraindications, Limitations and Recent Developments. A. U. Desjardins, Rochester, Minn.—p. 226.
Roentgen Ray Anthropometry of Skull. A. J. Pacini, Washington, D. C.—p. 230.
Standardization of Dosage Factors. H. J. Ullmann, Santa Barbara, Calif.—p. 239.

Missouri State Medical Association Journal, St. Louis

June, 1922, **19**, No. 6

Reorganization and Consolidation of State Hospitals of Missouri. G. P. Ard, Jefferson City, Mo.—p. 251.
Two Stage Operation for Relief of Certain Infections of Biliary Passages. W. P. Glennon, St. Louis.—p. 256.
Epithelial Proliferation. Differential Pressure as Aid in Growth of Epithelium on Denuded Surface. E. D. Twyman, Kansas City, Mo. —p. 257.
Focal Infection Idea. R. Kinsella, St. Louis.—p. 258.
Digitalis, Excellent But Dangerous Therapeutic Agent. J. F. Chandler, Oregon, Mo.—p. 260.
*Megacolon: Report of Case. E. Fischel, St. Louis.—p. 261.
Immediate Cure of Chronic Catarrhal Deafness: Painless Cure of Chronic Ear Discharge, Including Ideal Mastoid Antrum Opening by Way of Auditory Canal. R. Barclay, St. Louis.—p. 264.
Importance of Blood Chemistry in Chronic Nephritis. C. M. Wilhelmj, St. Louis.—p. 268.
Scope and Purpose of International Health Board. J. A. Ferrell, New York.—p. 271.
Gastric Ulcer. T. G. Hall, St. Louis.—p. 274.

Case of Megacolon with Symptoms of Obstruction.—Fischel reports the case of a man, aged 48, who presented symptoms which led to the diagnosis of acute bowel obstruction due probably to a malignant tumor of the sigmoid. At the operation the suture colon from the cecum to the rectum was markedly hypertrophied. The condition was recognized as a true megacolon. A complete resection of the colon was done beginning at the proximal side of the ileocecal valve and terminating at the disal end of the sigmoid. The disal end of the severed sigmoid was inverted and an end to side

anastomis of the ileum to the anterior wall of the rectum was performed. The postoperative course was stormy in the extreme. The patient was discharged seven weeks after the operation with the wound entirely healed. He was seen again three years later. He worked steadily; had two large, soft stools daily. There was considerable urgency, however.

Virginia Medical Monthly, Richmond

May, 1922, **49**, No. 2

Lung Abscess: with Report of Cases. J. T. Buxton, Newport News.—p. 53.
Remarks About Head and Other Pains Due to Nasal Irritation. J. A. White, Richmond.—p. 61.
Electrotherapeutic Misconception. Sinusoidal Current. C. A. Pfender, Washington, D. C.—p. 65.
Silent Stones. W. L. Peple, Richmond.—p. 70.
Gallbladder Disease. W. E. Clark and M. W. Perry, Washington, D. C.—p. 74.
Surgical Significance of Pain in Left Side of Abdomen. R. L. Pittman, Fayetteville, N. C.—p. 81.
Report of Case of Melanotic Sarcoma of Choroid. C. Edmond, Clifton Forge.—p. 84.
Plea for Greater Effort in Conservation of Hearing in Acute Diseases of Middle Ear and Mastoid. E. W. Perry, Lynchburg.—p. 85.
Relation of Modern Dentistry to Practice of Medicine. G. R. Harrison, Richmond.—p. 88.
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Home Treatment of Tuberculosis. R. L. Raiford, Sedley.—p. 93.
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Wisconsin Medical Journal, Milwaukee

June, 1922, **21**, No. 1

Newer Conceptions as to Causes of Gastric Ulcer. K. W. Doege, Marshfield, Wis.—p. 1.
Doctrine of Prepared Soil: Neglected Factor in Surgical Infections. H. Cabot, Ann Arbor, Mich.—p. 6.
Cholecystectomy — Its Failure to Give Relief in Certain Cases of Cholelithiasis. P. P. M. Jorgensen, Kenosha, Wis.—p. 11.
Eye Injuries in Industries. G. I. Hogue, Milwaukee.—p. 12.
Hyperalgesia of Skin and Subcutaneous Tissues as Factor in Diagnosis of Lesions of Abdominal Viscera. G. F. Thompson, Chicago.—p. 14.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 17, 1922, **1**, No. 3207

Sins and Sorrows of Colon. A. F. Hurst.—p. 941.
*Physiologic Explanation of Pain Due to Functional Disturbance of Muscle of Colon. T. S. Wilson.—p. 944.
*Two Hundred and Twenty-Five Cases of Pneumonia: An Analysis. A. W. Owen.—p. 946.
*Treatment of Chronic Synovitis of Knee Joint. G. G. Atkins.—p. 948.
Neurosyphilis with Severe Laryngeal Crisis: Tracheotomy. J. W. Leitch.—p. 949.
Treatment of Asylum Dysentery by Means of Antidysentery Serum. P. Lornie and D. E. Jones.—p. 949.
External Hydrocephalus. C. E. Reynolds.—p. 950.
Case of Addison's Disease, Rapidly Fatal. C. M. Fleming.—p. 951
Cobra Bite. V. St. J. Croley.—p. 951.

Functional Disturbance of Colon Causes Abdominal Pain.—Clinical study of cases has convinced Wilson that pain can be caused by the transference to the sensory tracts of the cord of afferent impulses which arise in the sympathetic and which if retained in that system would cause disturbance of the brain of a reflex character and would not cause physical pain. It seems probable that when the muscular activity which originates the nervous impulse is decidedly more powerful than impulses due to normal digestive activity, there is considerable probability of this transference taking place, and when, as in cases approaching the severity of ordinary colic, the afferent impulse is an extremely powerful one, the transference of the nervous impulse from the sympathetic system to the sensory tracts of the cord almost invariably takes place and a sensation of pain is the result. With regard to the localization of the pain it is not, as a rule, felt over the spot where it probably arose, but is usually "referred" or "segmental" in character. The clinical study of a series of cases in which mental depression and neurasthenic symptoms result from functional disturbance of the colon muscles, shows that there are some cases which cannot be explained by the theory of inhibited cerebral vasodilatation. When the circulation alone is concerned, the defect can be removed by a more vigorous mental effort, just as is the case with physical lassitude which can be overcome by a more vigorous muscular effort. It is not at all unusual, however, to find cases of functional colon disturbance in which the mental depression is so severe as to be wholly beyond the patient's voluntary control, and constitutes an acute mental misery which is comparable in the mental sphere to a severe physical pain in the sphere of sensation. The occurrence of such cases compels recognition of the fact that nervous impulses arising in the colon and passing to the brain along sympathetic nerve paths have the power of directly disturbing that portion (or those functions) of the brain on which the sense of well being is dependent, and of giving rise to an acute mental misery which truly represents the physical pain which they would have felt if the afferent impulse causing it had been transferred from the sympathetic to the sensory tracts of the cord. The fact that these cases are really due to the functional disturbance in the colon is demonstrable clinically by the fact that they yield to treatment which lessens the amount of postural activity in the colon.

Treatment of Pneumonia.—The mortality in Owen's series of 225 cases was 14.2 per cent. The treatment consisted in the administration of milk, beef tea, albumin water, and plenty of cold water until after the crisis; ammonium carbonate, 5 grains every four hours for adults and 1 grain for an infant of 1 year, and proportionately according to age. Morphin for adults and brandy were the only other remedies used.

Treatment of Synovitis of Knee Joint.—Chronic effusion of the knee joint Atkins asserts is, in 75 per cent. of cases, not due to an injured cartilage, but to a strain of some structure around the joint. This can be dealt with effectively by reeducation of the vastus internus, plus the production of as large an increase as is possible in the blood supply around the joint. This latter is obtained by (1) contrast baths; (2) limited active exercise of all muscles around the joint, and (3) massage. If this treatment is instituted in every case of chronic effusion of the knee joint the number of operations for a so-called injured cartilage will diminish, and many men will be able to enjoy various forms of sport which they otherwise would not be able to take part in for fear of "putting out" a knee again.

Bristol Medico-Chirurgical Journal

March and June, 1922, **39**, No. 145

Medicine and Psychology. J. H. Parsons.—p. 2.
Renal Efficiency. C. Clarke.—p. 13.
Physiologic Conception of Prolonged Hysterical Conditions. H. H. Carleton.—p. 36.

Journal of Laryngology and Otology, Edinburgh

June, 1922, **37**, No. 6

So-Called Prolapse of Laryngeal Ventricle, and Eversion of Sacculus. I. Moore.—p. 265.
Modified Radical Mastoid Operation. D. Watson.—p. 275.
Case of Cavernous Sinus Thrombosis of Otitic Origin by Supposed Direct Infection of Petrosal Sinuses. J. A. M. Hemmeon.—p. 281.
Transnasal Laryngeal Medication in Laryngeal Phthisis. J. Dundas-Grant.—p. 285.
Malignant Disease of Nasal Accessory Sinuses. E. M. Woodman.—p. 287.
Basal Cell Carcinoma of Larynx. W. G. Howarth.—p. 295.

Journal of Obs. and Gyn. of British Empire, London

1922, **29**, No. 1

Manchester School: Charles White (1728-1813) and Arrest of Puerperal Fever. J. G. Adami.—p. 1.
*Chemical Observations on Toxemias of Pregnancy. O. L. V. de Wesselow.—p. 21.
*Extragenital Chorionepithelioma of Congenital Origin. J. Miller and F. J. Browne.—p. 48.
*After-Results of Removal of Uterine Appendages in Hysterectomy for Uterine Fibroids and Chronic Metritis. J. W. Bride.—p. 68.
*Case of Iniencephaly Without Spina Bifida. G. I. Strachan.—p. 87.
Salpingotomy Versus Salpingectomy in Treatment of Tubal Gestation. B. Whitehouse.—p. 93.
Treatment of Advanced Carcinoma of Cervix of Uterus by Radium. A. Burrows.—p. 97.
*Case Diagnosed as Fulminant Menstrual Peritonitis: Contribution to Study of Idiopathic Puerperal Fever (Self-Infective). J. G. Adami.—p. 104.

Infected Fibromyoma of Puerperal Uterus Associated with General Peritonitis and Removed by Hysterectomy. E. Holland.—p. 108.
Case of Rupture of Uterus Through Scar of Previous Cesarean Section. L. Graham.—p. 111.

Chemistry of Toxemia of Pregnancy.—A study of the literature has led de Wesselow to the conclusion that the data available for the chemical findings in normal pregnancy are scanty and contradictory. Apparently the organism is in a condition of low nitrogenous metabolism, and therefore from the standpoint of urinary nitrogen distribution is in unstable equilibrim. From the conditions present in pregnancy, it appears unlikely that an undue strain is being placed on the excretory organs, but rather that the demands made on the excretory functions of the kidney are, as far as concerns nitrogenous waste products, less than in the normal person. The corresponding chemical data for toxemic and eclamptic cases are given. In four cases of pyelitis complicating pregnancy, the blood urea values varied from 14 to 21 mg. Evidence of a renal defect was, however, present in all in the form of a definitely lowered response to the urea concentration test, the lowest figure noted being 1.3 per cent. It would seem that the indications furnished by the urea concentration test are, in these cases, of considerably greater value than determinations of the urea and nonprotein nitrogen of the blood. Further, the repetition of the test, when it has been possible, has usually given indications of the progress of the case. With few exceptions, defect of the urea excreting power of the kidney appears to be the rule in the toxemias of pregnancy, and since edema is almost invariably present, the nephritis would appear to be of the mixed type; the impairment of the ability to excrete waste nitrogenous products, though definite, as shown by the urea test, is not usually extreme. Marked accumulation of the urea and other nonprotein nitrogenous bodies in the blood is infrequent, but from a functional standpoint the lesion does not appear to differ in any way from the mixed type of nephritis, so frequently seen in nonpregnant women. No evidence could be obtained by the methods employed of a differentiation into groups, nor from a chemical standpoint were any definite differences detected between those cases complicated by convulsions and those in which no convulsions occurred. On the contrary, the cases studied appeared to present a continuous graduation from the mildest type of albuminuria of pregnancy to the most severe. No evidence could be obtained of the existence of an hepatic as distinct from a nephritic toxemia of pregnancy. De Wesselow believes that chemical examination should be of definite value in averting the risk of permanent damage to the mother, and in indicating the stage at which induction becomes necessary. A definitely raised urea content of the blood above 40 mg. per hundred c.c. is proof that the kidney is severely damaged, and is an indication for induction of labor. In default of a raised blood urea, the urea concentration test affords valuable evidence of the condition of the renal function, and, when the figure obtained is below 2 per cent., termination of the pregnancy should be considered. Repetition of both examinations, after an interval, is invaluable, since a rising blood urea with a falling concentration capacity constitutes an obvious indication of a progressive lesion. In cases in which a low diastatic content is present, chronic disease and a less complete recovery are suggested. In all cases blood pressure observations afford most valuable assistance in prognosis and treatment.

Extragenital Chorionepithelioma in Male.—In the case reported by Miller and Browne a testicular growth was excluded with certainty, and the primary tumor was situated behind the liver, arising there in all probability from an errant primitive germ cell. The patient was a male, aged 39. With the exception of slight colds he had been well all his life until about six weeks before admission. He then began to be troubled intermittently with a pain in the right side, just "at the foot of the ribs." At first slight, the pain had gradually become worse. It was only after admission to the infirmary that he noticed any swelling in his abdomen. The swelling became rapidly larger after admission. Patient stated that never at any time was he jaundiced and he had never suffered from piles or from swelling of the legs or feet. The liver rapidly enlarged and became more painful. A needle was put into the liver and blood stained fluid drawn off, the syringe being easily filled, and the fluid under a certain degree of pressure. Large cells resembling amebae were present. A second specimen was obtained in a similar way a few days later, and on this occasion no such cells were found. The pain now became so severe and continuous as to require the frequent administration of heroin. Slight jaundice made its appearance, the liver became excessively tender, the least touch causing agony. On the thirtieth day after admission the patient died, after having been delirious during the previous twenty-four hours. At the necropsy the abdominal cavity was found filled with fluid and clotted blood. The liver was enormously enlarged, and showed several tumor-like masses, visible through the capsule. On section very large tumor masses were seen; some of these consisted of large spaces filled with fluid blood. Immediately behind the liver was a large mass, apparently enclosed in a fibrous capsule, and containing material similar to that found in the liver tumors. In addition there were several large glands behind the peritoneum infiltrated with growth which had the same appearance. The testicles were carefully examined, but no abnormality was found, either to the naked eye or microscopically. The histologic examination, which is described in detail, disclosed the fact that this was a typical chorionepithelioma, which evidently originated in an abnormally situated primitive germ cell. The latter, without fertilization, had undergone development, producing a teratoma containing all three layers of the embryo plus trophoblast. The stimulus for division of the primitive germ cell (gamete) probably was found in the abnormal (not ovarian or testicular) tissue by which the gamete was surrounded. The authors suggest that the cause of the malignant transformation of the teratomatous formation may be found in the little understood disturbed balance of internal secretions, occurring in adult and especially in middle life.

After-Results of Removal of Tubes and Ovaries.—Of 231 patients who answered Bride's questionnaire, 186 had both their ovaries and tubes removed. Abdominal or vaginal total hysterectomy had been performed in 8 cases; subtotal or supravaginal hysterectomy had been performed in 178 cases; the remaining 45 patients had either one or both uterine appendages left. Vaginal hysterectomy with removal of one appendage had been performed in 2 cases. Supravaginal hysterectomy with removal of one appendage had been performed in 3 cases. Vaginal hysterectomy with both appendages left had been performed in 40 cases. These investigations seem to have established the following points in comparing the conservative and radical operations: (1) The general health of nearly all the patients after both operations is much better, but a larger percentage are better after the radical operation. (2) The temperament of the patients is adversely affected in only a small percentage after either operation, but after the conservative procedure this percentage is slightly larger. (3) Flushings occur in a large percentage of patients after either operation. The percentage is greater, though not much, after the radical operation. (4) A very small percentage of patients complain of nervous symptoms after operation, but the percentage is larger after the conservative operation. (5) A very small percentage of women after either operation complain of more pain, but after the conservative operation it is more than twice the percentage after the radical operation. (6) A larger percentage of women have disturbances of their sexual relations after the radical than after the conservative operation in the proportion of 39 to 26 per cent. (7) There is a greater tendency to adiposity when both ovaries are removed. In brief, then, so far as the majority of the manifestations of the artificial menopause are concerned, there is very little to choose between the two types of operation. The advantage lies with the radical operation in every way save two. The two exceptions are the occurrence of flushes and the sexual disability.

Iniencephaly Without Spina Bifida.—Besides the deformity indicated in the title there was in this case absence of the

left cupola of the diaphragm in its dorsilateral part, the ventrilateral part being represented by a small muscular band attached to the costal margin in front and with a free posterior edge. The left hepatic lobe occupied the space to the left of the heart normally occupied by the left lung. The liver was of a doubled-up shape from side to side, the groove for the ductus venosus being converted into a canal by fusion of hepatic tissue underneath. Some small intestine (7.5 cm.) was firmly adherent to the cystic duct and had to be removed with the liver. The left kidney and suprarenal body were seen extending up the posterior wall of the thorax, the tip of the suprarenal body lying at the level of the seventh rib, while above this was the spleen. Between these structures and the heart was the left lung, a small fleshy structure 3 cm. in vertical measurement attached to the left side of the pericardium. The right lung was also small, firm and fleshy, but larger than the left, being 5.2 cm. long. The thymus was large and pale and hung down one third of the way in front of the pericardium, while the thyroid was normally situated and presented no naked eye abnormality. The stomach consisted of a vertical cul-de-sac, the wall of which was pale and showed some sacculation: the apertures of entry and exit were both at the upper end only about 1 cm. apart, while the sac measured vertically 6 cm. The organ lay partly behind the heart and partly behind the liver, and surrounded by a large and soft pancreas. The small intestine, 41.0 cm. in length, lay partly behind the pericardium and partly arranged in an irregular fashion in the abdomen, ending in the left iliac fossa where the appendix was seen: the ileocecal junction was represented by an ampulla-like swelling from which the large intestine extended in an irregularly double sigmoid fashion to turn down into the pelvis to join the rectum, which opened at the anus. The intestinal canal was everywhere patent, but there was no difference in caliber between the small and large intestine, the latter showing no attempt at arrangement into ascending, transverse and descending colon. The kidneys were both lobulated: the right one was normally placed. Apart from being prolonged, the labor, which lasted sixty-two hours, was normal, while the fetal heart, beating at 120 per minute, was heard in the early part of labor, although at birth the fetus was dead.

Fulminant Menstrual Peritonitis.—Adami reports his findings in a necropsy made on a young girl, aged 14, who died suddenly after an illness of very short duration the exact nature of which could not be determined. The only pathology present was found in the abdomen. The intestines were wetter than usual and diffusely injected, and there was a very definite accumulation of fluid in the pelvic cavity, where also the intestinal coils and the fallopian tubes were more intensely injected. The fluid was not purulent; it was translucent, though at the same time definitely turbid. The congestion and increased quantity of fluid indicated that here was a peritonitis of an acute type that had not gone on to suppuration. All other organs were normal. The girl was menstruating at the time of her death. The uterus was firm, of normal size, its mucosa reddened, and it contained blood stained fluid. There was, however, no appearance not compatible with simple menstruation. The fallopian tubes were injected, as already stated, and the fimbriae abnormally "angry" in appearance. The ovaries were normal. The symptoms had been abdominal. Examination of the abdominal fluid gave a pure culture of a streptococcus in long chains. The history was that the girl had been menstruating for three days before her death. About twelve hours after the completion of an athletic contest the girl woke with acute abdominal discomfort, which gave way to intense pain and the development of an intense toxic, comatose state. Death supervened just about twelve hours after the appearance of the first symptom. Adami gives this explanation of the case: Whereas between menstrual periods the uterus is sealed by the cervical plug of mucus, during menstruation the mouth of the uterus and so the way to the fallopian tubes and peritoneal cavity is open, and that by negative abdominal pressure the contents of the vagina may thus under favorable circumstances be sucked into the peritoneal cavity. A single brief period of negative pressure might at most draw the vaginal contents into the mouth of the uterus, but a succession of acts leading to alternative positive and negative pressures in the abdominal cavity, acts such as swinging from ring to ring round the gymnasium, or again acts of prolonged negative pressure, such as balancing inverted, with feet in the air, on the "horse" or parallel bars, would strongly favor the suction of vaginal contents along the whole length of the female genital canal.

Journal of State Medicine, London

June, 1922, **30**, No. 6

Alcohol in Relation to Industrial Hygiene and Efficiency. T. Oliver, —p. 231.
Institutional Management of Young Infants. E. Pritchard.—p. 249.
Anaerobic Infections. W. Cramer and W. E. Gye.—p. 254.
Chlorination of Municipal Water Supplies. J. Race.—p. 263.

Lancet, London

June 24, 1922, **1**, No. 5156

Clinical Symptoms of Cerebellar Disease and Their Interpretation. G. Holmes.—p. 1231.
*Bacillus Coli Infection of Urine. W. Hale-White.—p. 1237.
*Recognition of Congenital Syphilitic Inflammation of Long Bones. H. M. Turnbull.—p. 1239.
*Rheumatic Cardiac Affections: Plea for Notification and Institutional Treatment. M. O. Raven.—p. 1241.
Fish Liver Oils and Other Highly Potent Sources of Vitamin A. S. S. Zilva and J. C. Drummond.—p. 1243.
Case of Acute Primary Phlegmonous Enteritis. J. B. F. Wilson.—p. 1244.

Bacillus Coli Infection of Urine.—Hale-White states that sufferers from this condition must stay in bed; plenty of bland drink, such as barley water, should be given to wash out the bacilli; food should be light and suitable to the degree of the rise of temperature. In young children it is particularly important by every possible means to get them to take and absorb nourishment, for they waste rapidly in many instances. If pain or frequency of micturition lead to bad nights, hyoscyamus, and, if necessary, sleeping draughts, or even morphin, should be given. The patients so rarely die, and the disease is so frequently overlooked, that we must conclude that the natural tendency is for these patients to get well. Therefore, it is difficult to be sure whether any particular treatment is beneficial, but it seems reasonable to try to disinfect the urine. But if the disease is primarily a blood infection and the bacilli are excreted by the urine and then set up the urinary symptoms, this treatment will not affect such of the symptoms as are due to the blood infection. Usually an autogenous colon vaccine is used; it is difficult to prove that it does good, but to give it is reasonable. Those who have suffered from the disease once are especially liable to do so again; such either have a low resistance to the bacilli or in them they are especially virulent.

Congenital Syphilitic Osteitis.—Congenital syphilitic disease of bone, Turnbull asserts, is not a general systemic condition, but is due to the local presence of spirochetes. The older the child, the fewer are the portions of bone affected. In the fetus the infection tends to be widespread, but it is not necessarily universal. Further, when several bones are affected, the lesions are greater and more conspicuous in some bones than in others. It is advisable, therefore, in each case to examine as many bones as possible. The femur, tibia, humerus, and ribs are sites of election; the femur and ribs are easy of access, and should be examined in all cases.

Rheumatic Heart Disease.—Raven is convinced that if rheumatic heart disease could be made equally with tuberculosis a notifiable disease, many tragedies would be avoided; it would soon be generally recognized that every case in which there has been the slightest sign of damage to the heart requires long recumbency and longer observation; medical officers should be enabled to supervise the conditions under which patients receive their treatment, and institutions should be provided for their recovery if, as will be the case, as a general rule, treatment at home is not giving the heart its best chance; lastly, careful watch should be kept over all children with damaged hearts, until they reach an age when they may be expected to exercise the necessary self-restraint. The hearts which are much in evidence in the examination room, exhibiting various combinations of mur-

murs and thrills, are not those which should interest us most. The most interesting heart is the one which, known to have once been involved in an acute rheumatic infection, is nevertheless observed to be functionally efficient ten, twenty, forty and sixty years afterward.

Medical Journal of Australia, Sydney

May 20, 1922, **1**, No. 20

Dementia Praecox. J. T. Anderson.—p. 540.
Present Plague Outbreak in Sydney. W. G. Armstrong.—p. 546.
Plague Epidemic. E. W. Ferguson.—p. 552.

May 27, 1922, **1**, No. 21

Treatment of Malignant Disease by Radiation. H. C. Nott.—p. 567.
Criteria of Normality in Growth of Children. T. B. Robertson.—p. 570.
Treatment of Vascular Nevi. E. H. Molesworth.—p. 576.
Vaccine Treatment of Gonorrhea. A. Foster.—p. 578.
Case of Idiopathic Partial Rupture of Sigmoid Colon with Hemorrhage into Peritoneal Cavity. R. Southby.—p. 579.

Naval Medical Association Bulletin, Tokyo

May, 1922, No. 35

Experimental Study on Histologic Changes of Wound by Exposure to Direct Rays of Sun. I. Sugita.—p. 1.

Annales des Maladies Vénériennes, Paris

June, 1922, **17**, No. 6

*Failure of Preventive Treatment of Syphilis. J. Golay.—p. 401.
*Formaldehyd Test in Serodiagnosis of Syphilis. A. Bouttiau.—p. 407.
Latent Chronic Cowperitis. R. Leszczynski.—p. 416.
Syphilitic Aneurysms of Arch of Aorta. Decrop and Salle.—p. 438.
"Invisible" Chancre of the Vulva. G. Belgodere.—p. 442.
Lymphangitis of Arm Cured by Antigonococcus Vaccine. Matarasso.—p. 448.

Failure of Preventive Treatment of Syphilis.—The two men of 30 and 38 were given systematic preventive treatment, and this evidently warded off the primary lesion, but the secondary manifestations developed the same as if no treatment had been given, only five or seven weeks later than usual. The failure was probably due to the length of the interval before treatment was begun, sixteen days and twenty-eight days after infection.

Formaldehyd in Serodiagnosis.—Bouttiau concludes from 1,500 applications of the Gate and Papacosta test that the reaction is strictly specific for syphilis.

Journal de Chirurgie, Paris

June, 1922, **19**, No. 6

*Conservative Hysterectomy. P. Lecène and Gaulart-d'Allaines.—p. 561.
*Radium Treatment of Hemorrhagic Metritis. M. Letulle.—p. 579.
*Idem. H. Cesbron.—p. 594.

"Fundic Hysterectomy."—Lecène applies this term to wedge resection of the fundus of the uterus, with the adnexa, leaving only one ovary or part of one. His six illustrations show the various steps of the procedure. The seventeen patients recently reexamined, out of the total twenty-one thus treated, confirm the excellent outcome. Menstruation had continued regularly in 76 per cent. of the women although less profuse than before. In 18 per cent. there was a tendency to hot flashes or to obesity, so the results were only mediocre. One woman of 40 has pronounced symptoms of the artificial menopause; in this case, retention of the ovary failed to accomplish its purpose. The fold of peritoneum between bladder and uterus is drawn up and sutured to the peritoneal fold at the rear of the uterus. This pulls the bladder backward, but none of the patients seemed to feel any ill effects from this. The details of the twenty-one cases are given.

Radium Treatment of Hemorrhagic Hypertrophic Metritis.—Letulle reports a case of this kind in which the hemorrhages returned after radium treatment and again after a second application in seven weeks. The woman of 45 returned two months later bleeding even more profusely, until hysterectomy put an end to the hemorrhages. His photomicrograms show the fibrinoid aspect, etc., of the tissues, the vessels still permeable for blood, without a trace of coagulation.

Radium Treatment of Hemorrhagic Metritis.—Cesbron gives the bibliography on this subject since 1912, and discusses in particular the indications and technic for radium treatment of hemorrhagic metritis in virgins, in women during the reproductive period, and during the menopause, and the chronic cases. He advocates radium treatment of hemorrhagic metritis in virgins only as the last resource, after failure of all other measures, including organotherapy. The results have been constantly favorable in his experience with one to three applications, with intervals of a month. The menses are arrested for two or three months, and then they return, normal. Several girls thus treated have passed through normal pregnancies since. Siredey warns, however, that even a single mild radium exposure may entail permanent sterility. In chronic metritis and the metritis of the menopause, radium is incontestably the treatment of choice.

Paris Médical

June 10, 1922, **12**, No. 23

*Herpes Zoster and Facial Paralysis. G. Worms and V. de Lavergne.—p. 481.
*Serodiagnosis of Tuberculosis. G. Ichok.—p. 485.
*Ischemic Retraction of Finger Flexors. Soubeyran.—p. 490.

Herpes Zoster and Facial Paralysis.—Worms and de Lavergne are inclined to think that in many instances of facial paralysis for which herpes zoster is responsible, this factor is overlooked. The herpes zoster infection affecting the geniculate ganglion may induce a number of clinical pictures, from the complete geniculate syndrome to almost pure facial paralysis. The lumbar puncture fluid generally shows lymphocytosis and high albumin and sugar content in herpes zoster. This completed the differential diagnosis in one case.

Serodiagnosis of Tuberculosis.—Ichok writes from Besredka's laboratory to confirm the reliability of the complement fixation test for tuberculosis when Besredka's egg antigen is used. In 900 persons tested the reaction was constantly negative in the nontuberculous. In fifty-four children in an institution, a positive reaction was obtained in four, and in these four, tuberculous lesions were discovered later. Mozer and Fried applied the test in 1,005 cases of surgical tuberculosis, and report that it is as reliable in this class of cases as the Wassermann reaction with syphilitic disease of the bones. Other testimony is accumulating on the value of the test. The egg antigen is made by adding 1 liter of distilled water to the yolks of twenty eggs (350 c.c.). The water must have a neutral reaction. The emulsion is then clarified with a 1 per cent. solution of sodium hydroxid. The amount required varies with different eggs; the optimum is reached when the fluid looks transparent in a thin layer, as in a pipet, and opaque in a thick layer. The fluid is diluted to 7 liters. The yolks are then in a proportion of about 1:20 (350:7,000 = 1:20). This culture medium is then distributed in Roux boxes (50 to 150 c.c.) and is sterilized at 110 C. for twenty minutes. Four day cultures on this medium, sterilized and rendered homogeneous by agitation, form the antigen for the seroreaction. The mother emulsion retains its properties indefinitely.

Resection of Bones of Fore-Arm for Ischemic Retraction of Flexor Muscles.—Soubeyan corrected the crippling retraction of the fingers in the boy of 10 by shortening the long bones to correspond. He cut out a segment 2 cm. long, inside the periosteum, in both radius and ulna but at different levels. No attempt was made to suture the bone, the sutured periosteum cuff forming a support. The plaster splint held the elbow flexed, the fingers extended, in complete supination. It was discarded the twenty-fifth day, and the functional use of the fingers was regained and has been complete during the eight years to date. The arm is 1.5 cm. shorter than its mate.

Presse Médicale, Paris

June 7, 1922, **30**, No. 45

*Glycemia in Diabetics. M. and H. Labbé and F. Nepveux.—p. 485.
Sensory Disturbances with Facial Paralysis. J. R. Pierre.—p. 488.

Glycemia in Diabetics.—Labbé and Nepveu give the composite curve from seven healthy persons tested with 45 gm. of glucose in 200 c.c. of water, fasting, with an additional 150 c.c. of water at half hour intervals. The sugar content

of the blood ran up at once; it reached its maximum in thirty minutes on an average, and returned to the preceding figure by the second or third hour. The increase ranged from 0.14 to 0.34 gm. In twelve diabetics the increase ranged from 0.5 to 2 gm.; the maximum was not reached until very much later, up to 180 minutes, and the reaction persisted much longer, up to four and a half to seven hours. The simple test reveals latent diabetes, and is a useful guide for treatment. It is the only means to determine whether the diabetic has been cured. The glycosuria does not necessarily parallel the glycemia. The derangement in regulation of the sugar metabolism may be more severe than the glycosuria would indicate. The diabetics in this group generally display more or less of a tendency to obesity and Bright's disease.

June 14, 1922, **30**, No. 47

Deep Roentgenotherapy for Uterine Cancers and Fibromas. C. Chambacher and P. Descoust.—p. 509.
*Typhus. H. Turcan.—p. 512.

Symptoms of Typhus.—Turcan ascribes differential importance to the total and rebellious insomnia, the brownish leathery coating of the tongue and the peculiar eruption, small roundish or lenticular discolored spots or papules, scattered irregularly but connected by an almost invisible mottling. The elements of the eruption cannot be obliterated by pressure. The delirium is also of a special type, calm and almost rational, although based on some delirious notion, generally professional.

Schweizerische medizinische Wochenschrift, Basel

May 25, 1922, **52**, No. 21, Siebenmann Number

Paraffin Injections in Treatment of Ozena. Baumgärtner.—p. 490.
Differential Diagnosis of Retropharyngeal Tumors. Buchmann.—p. 492.
*Psammoma of Ethmoid Sinus. C. v. Eicken.—p. 495.
Treatment of Atresia of the Nares. G. Elmiger.—p. 497.
*Congenital Stenosis of Esophagus. G. Frey.—p. 498.
Five Years of Surgery of Ear and Nose. H. Haag.—p. 498.
Bone Growth in Nose of Old Syphilitic. E. Hopmann.—p. 504.
*Diverticulum in Esophagus. T. Hug.—p. 505.
*Primary Cancer of the Middle Ear. A. Junod.—p. 510.
Action of Acids as Local Caustics. K. Mayer.—p. 514.
Bronchoscopy. E. Minder.—p. 515.
*Intranasal Encephalocele. F. R. Nager.—p. 516.
Foreign Bodies; Esophagoscopy; Forty-One Cases. Oppikofer.—p. 519.
Ear Complications of Influenza. E. Roch.—p. 528.
*Cancer of Thyroid. E. Ruppanner.—p. 533.
*Mastoiditis and Otitis Media. E. Schlittler.—p. 535.
Plastic Reconstruction of Larynx and Trachea. C. Schmidt.—p. 539.
Tamponing the Nose. C. Schmidt.—p. 540.
Fibroma in Nasopharynx. W. Studer.—p. 541.
Injury of Cranial Nerves with Fracture of Base of Skull. K. Ulrich.—p. 545.

Psammoma of Nasal Sinuses.—The tumor was successfully removed from the girl of 16 after its psammoma nature had been recognized as the sphenoid sinus was cleared out. The eyeball on that side had been protruding for a few months. The total mass of the tumor spread through the frontal, ethmoid and sphenoid sinuses; it was about as large as a hen's egg, and grated like sand under the knife. Two operations were required before the last trace of the tumor was removed, and with it a fragment of bone lined with the psammoma tissue. Several polyps had to be removed from the nose later, and suppuration in the frontal sinus called for thorough evacuation, but no evidence of return of the tumor has been observed during the five years since. It was impossible to determine where the tumor had originated. There is a possibility that it might have been connected with some intradural process.

Congenital Stenosis of the Esophagus.—The new-born infant vomited at once almost all it ingested. As it grew older the difficulty in swallowing was intermittent. The child was taken to different hospitals and treated with various courses of dieting, without avail. Esophagoscopy finally revealed a valvelike protrusion of normal mucosa 1 or 2 cm. above the cardia. Frey cut the free edge of this dilated portion, using a small foreign-body forceps. He followed this with systematic dilating procedures every two or three days, and in a month the boy was able to eat normally.

Diverticulum in Esophagus.—Hug reports three cases in men of 63 to 74 and a case in a woman of 43. The diverticulum was discovered in all in a comparatively early stage. The clue had been given by the air bubbles in the pyriform sinus. He pushed the diverticulum inside the esophagus, thus inverting and invaginating it, which rapidly entailed the shriveling and casting off of the invaginatum. No fistula was left in his cases, although in some the diverticulum was of moderate size. The patients could begin to eat at once. These pulsion diverticula are always above the mouth of the esophagus, and are thus in fact in the hypopharynx.

Primary Cancer of the Middle Ear.—Junod reports that only six cases of this kind have been encountered in over twenty-five years at the Basel ear clinic, among 45,000 ear patients.

Intranasal Encephalocele.—The encephalocele in the boy of 6 seemed to be merely a cyst, but on its recurrence a year later it was recognized as a transsphenoid encephalocele. He developed pneumococcus meningitis after a diagnostic excision. Although he recovered from this, he succumbed a year later to streptococcus meningitis. Nager was able to find only six analogous cases on record; the list includes one man of 60 and a babe of 3 days. In the one case of permanent recovery, the pedicle of the encephalocele was reached and ligated by resecting the upper jaw of the man of 29.

Cancer of the Thyroid.—In Ruppanner's case the cancer in the man of 50 developed in the esophagus after thyroidectomy. The goiter had been removed on account of disturbance in breathing. The esophagus carcinoma was safely removed in 1915. In January, 1922, he returned with a recurrence in the trachea, and this tumor was removed by the natural route. There has been no return since this merely palliative operation, and the patient is under close supervision.

Incipient Mastoiditis with Otitis Media.—Schlittler states that mastoiditis was found in all the fatal cases of intracranial complications of otitis media at the Basel ear clinic. An early mastoid operation almost invariably wards them off, and he describes how to recognize incipient involvement of the mastoid. The pains at night in the diseased ear, and the synchronous pulsation are instructive. By having the patient move his finger at each pulsation, we can see whether it corresponds to the pulse. Beside the tenderness back of the ear, bulging of the posterior wall of the meatus, and swelling and tenderness at the origin of the sternocleidomastoid muscle and in the zygoma region all point to involvement of the mastoid, as also a creamy purulent discharge, keeping up for five or six weeks, and lack of improvement in hearing after two to four weeks. But the synchronous pulsation, its arrest, its persistence, its returns, is the most instructive guide for estimation of mastoiditis. With secondary otitis media, in diabetes, etc., intracranial complications are less common, the tendency being rather to regressive necrotic changes.

June 1, 1922, **52**, No. 22

*The Nervous System in Disease of Organs. A. Oswald.—p. 553.
Refractometry and Viscosimetry of the Blood Serum. Rohrer.—p. 555.
Squill in Therapeutics. J. Markwalder.—p. 560.
Pharmacology of Squill. E. Jenny.—p. 562.

The Nervous System in Relation to Disease of Organs.—Oswald presents arguments to sustain the assumption that the nervous system affects the vital reactions more than we realize at present. The familiar experience that "the mouth waters" at sight and smell of appetizing food, suggests that something of the same stimulating nature may occur in one or more of the endocrine glands under certain experiences. They may "water" in response, or their normal "watering" may be stopped by emotional influences. A catarrhal gastric or intestinal affection of neurogenous origin, a conjunctivitis from mental overwork, a catarrhal endometritis may resist all treatment until the nervous system is rested and soothed, and then the cure is prompt and complete. When the autonomic nervous system is sensitized from any reason, it responds more readily to slight stimuli. Gastric and duodenal ulcer, colitis, chilblains and Raynaud's disease have already demonstrated the frequent preponderant share of the nervous system in their development. He is inclined to ascribe to the present mode of life an overstimulation of the

nervous system. This entails an excessive functioning of the endocrine glands; they produce an excessive amount of hormones, and this brings excessive growth. He offers this as the explanation for the unusually large numbers of exceptionally tall young persons that are developing now, shooting up far beyond the average. This does not indicate an improvement but rather deterioration of the race.

June 8, 1922, **52**, No. 23

*The Blood Supply of Functioning Organs. A. Fleisch.—p. 581.
*Test for Urobilin. E. Herzfeld.—p. 583.
Subretinal Cysticercus. J. Strebel.—p. 586.
*Castration in Pulmonary Tuberculosis. W. Rochedieu.—p. 588.

The Blood Supply of Functioning Organs.—Fleisch has devised a method for estimating the blood supply to different organs at work and at rest. With this he has determined that the acid products generated by the work of the tissues possess a vessel-dilating action. The blood supply is thus increased proportional to the amount of metabolic waste products formed. "Every organ, every segment of tissue receives exactly the amount of blood it requires for the work it is doing at the moment." The intensity of the dilatation of the vessels is a direct function of the amount of hydrogen ions.

Test for Urobilin.—Herzfeld has applied the zinc acetate fluorescence technic as a test for urobilin, and has found it sensitive and reliable. In 400 specimens of blood serum examined, there were traces of urobilin only in seven. In the twenty-four hours' urine it averaged 50 mg. in the healthy and in scarlet fever; 80 in polyarthritis and nephritis; 90 in the pregnant, and 250 mg. with cirrhosis of the liver.

Outcome After Termination of Pregnancy on Account of Pulmonary Tuberculosis.—Rochedieu tabulates the condition before, afterward and several years later in 9 cases of pulmonary tuberculosis in which abortion was induced and ovarian functioning arrested by roentgenization, and in 18 cases by abdominal hysterotomy and tubal sterilization. The ultimate outcome was much better in the castration group. Only 2 of the 9 have died since, and all the others are materially improved, while only 5 have improved in the 18 in the other group, and 6 have died. The roentgen castration arresting ovulation seems to have a very favorable influence on the disease. Temporary or definite castration is therefore advisable to supplement the artificial termination of the pregnancy in pulmonary tuberculosis.

Archivio Italiano di Chirurgia, Bologna

April, 1922, **5**, No. 2

*Reaction of Tissues to Sponge and Rubber. C. Vaccari.—p. 117.
*The Ambard Uroescretory Constant. M. Melanotte.—p. 150.
Fracture of the Skull. E. Magni.—p. 177.
*Delayed Healing of Fractures. G. Marsiglia.—p. 197.
*Operative Treatment of Femoral Thrombosis. M. Fasano.—p. 207.
*The Stomach Tube Before Operating for Perforation. R. Gandusio and G. Pototschnig.—p. 212.
*Treatment of Perforation of the Stomach. R. Gandusio.—p. 217.

Reaction of Tissues to Introduction of Rubber Sponge and Sheet Rubber.—Vaccari's research has confirmed that there is no special reaction to rubber introduced into the tissues. It behaves like any other aseptic foreign body except that there may be some chemical reaction in time from the substances released as the rubber gradually disintegrates. In twenty-two experiments on rabbits and other animals, rubber was used for various purposes including the suspension of the kidneys with a strip of rubber sponge or sheet rubber. The rubber became coated with new formed tissue in time. This encapsulation of the rubber renders it especially valuable for an isolating medium between tissues. In two clinical cases a piece of rubber sponge was used to fill up a cavity in a long bone after an osteomyelitic focus had been scraped out. In one of these cases the local tuberculous process flared up anew nearly a year later; it is possible that the presence of the foreign body may have contributed to this.

The Ambard Constant.—Melanotte warns that fever, diabetes, pregnancy, general anesthesia and nephritis with tendency to dropsy may each and all modify conditions so that the Ambard index may prove misleading. This is also possible from reflex action with catheterization of the ureters. He compares the findings of the Ambard index with the course in 53 cases of prostate enlargement, 13 of calculi or tumors in the bladder, and 142 cases of kidney disease. The index is a sentinel that warns when we are approaching the danger zone, but it does not take the place of the catheter for the ureters; these supplement each other, and enable the indications for nephrectomy to be materially extended.

Delayed Healing of Fractures.—Marsiglia reviews what has been published on the influence of endocrine glands on healing of fractures. The experimental research to date has been done almost exclusively on young, still growing animals. Thyroidectomy seemed to retard the healing of fractures, and thymectomy not only retarded but seemed to prevent healing. Ovariectomy, on the other hand, seemed to hasten the formation of callus. Marsiglia has repeated these experiments on adult dogs, and was unable to detect any retarding influence on the normal healing of fractures.

Operative Treatment for Femoral Thrombosis.—Fasano's patient was a man of 68 who had been having lancinating pains in the left foot for a month and there were signs of beginning gangrene. Pulsation was evident below the femoral arch although the pains involved the whole limb. The femoral artery was exposed and it was seen that the pulse wave stopped 3 cm. below Poupart's ligament. The artery was incised for 3 cm., 1 cm. below this point. This revealed an organized thrombus, compact and adherent to the vessel wall. It was forced out completely by manipulations, and the blood spurted at once. The artery was sutured. The pulse became perceptible in the foot, but this did not last more than a day or two, but the pains subsided and have not returned during the ten months since, and the gait is normal. The thrombosis evidently extended or reformed below the field of operation, but the removal of the accessible thrombus opened the passage into the deep collaterals. The circulation in these was enough to insure the nourishment of the tissues and check the tendency to gangrene.

The Stomach Tube Before Operating for Perforation of the Stomach.—Gandusio and Potctschnig protest against the ban on lavage of the stomach before operating on a perforated gastric ulcer. They advocate it as a direct advantage for both the patient and the surgeon. The possible theoretical objections to it are disproved by actual experience. They do not rinse out the stomach, but merely aspirate the contents.

Resection of the Stomach for Perforated Ulcer.—Gandusio's practical experience has demonstrated that when the operation can follow within two or three hours of the perforation, and the patients are young and in good condition, we need not hesitate to resect the stomach or duodenum and close the abdomen completely afterwards. Three cases are described and the prompt recovery is emphasized. The contents were aspirated as a preliminary measure. The symptoms of peritonitis subsided so promptly and completely that bowel functioning was resumed in two or three days, and the wound healed by primary intention. In two of the cases the perforation was the first sign of the stomach affection.

Chirurgia degli Organi di Movimento, Bologna

April, 1922, **6**, No. 2

Historic Frescoes in Rizzoli Institute. V. Putti.—p. 109.
*Traumatic Luxation of Hip-Joint in Children. G. Roello.—p. 119.
Static Relations Between Foot and Knee in Paralyzed Leg. V. Putti. —p. 125.
*Tardy Traumatic Ulnar Paralysis. G. Lusena.—p. 139.
*Growth Exostoses. F. Sanvenero.—p. 165.
*Loose Bodies in Joints. A. Pollidori.—p. 187.
*Hemophilic Arthritis. U. Montanari.—p. 212.
Hygroma of Subdeltoid Bursa. A. Avoni.—p. 233.
Congenital Curvature of the Tibia. L. La Ferla.—p. 242.
Congenital Malformation of Skull and Spine. M. Bertolotti and G. Mattirolo.—p. 253.
The Inventor of the Electric Thermophore. F. de Raffaele.—p. 262.

Traumatic Luxation of the Hip-Joint in Children.—Roello encountered only three cases of traumatic luxation of the hip-joint in children in a total of 1,463 cases of traumatic injury of bones or joints in ten years. Two of these cases are illustrated here, and the promptness of the cure is

emphasized, after reduction. Both boys could use the limb normally five days after removal of the plaster bandage, about sixteen days after the reduction procedures.

Tardy Ulnar Paralysis After Fracture.—In Lusena's two cases, the ulnar paralysis developed in a young woman and a man of 45 nineteen and forty years after the head of the humerus had been fractured in childhood with resulting tendency to valgus deformity. In two similar cases on record, the interval was fifty and fifty-seven years before the paralysis developed. Electric treatment and resting the joint cured his first patient, as likewise in Panas' case. Neurolysis alone has seldom succeeded. In Lusena's second case, he resected the large pseudoneuroma on the nerve, and, before suturing, shifted the nerve to a position in front of the humerus where it could be sutured without traction, and was protected against further strain.

Growth Exostoses.—Sanvenero describes a family in which round bunches developed on the long bones during the period of active growth. In the father they were first noticed at the age of 12, and became large enough to show at 18, but did not develop further after 25. The exostoses cast a shadow like normal bones. The daughter, now 8, presents similar multiple bone growths. The tendency to symmetry, the large number, and the hereditary character distinguish these growth exostoses from those encountered in various diseases and after trauma. In one family the exostoses in a boy of 4 are the miniature reproduction of his father's. Marie has published two cases with several hundred exostoses of this kind. The limbs may be of uneven length. There are rarely any complications otherwise; in Sanvenero's adult case the use of one knee is hampered by the large exostosis in the popliteal space, but there is no nervous or vascular disturbance. No medical treatment is of any avail, and if the exostoses are resected during the period of active growth there may be recurrence. In Martel's case, the recurrence was in the form of a malignant tumor.

Loose Bodies in Joints.—Pollidori's review of the literature confirms that the origin of loose bodies in joints is still an unsettled question. The knee is usually the joint involved, and in a case described in detail the traumatic origin of the two loose bodies was sustained by the history and by the microscopic findings. The loose bodies became incarcerated at times, but aside from these periods the gait was not affected. There had been severe trauma of the knee at the age of 8 and again at 10, but the first symptoms developed a year later. At the age of 24 a separate incision was made to remove each of the two loose bodies and normal functioning of the joint was restored.

Hemophilic Arthritis.—Montanari has had 11 cases and knows of 3 more in which, without known cause, or insignificant trauma, the knee, shoulder, elbow or wrist filled with fluid, with ecchymoses in the vicinity. Slight fever followed, and the condition was chronic, the extravasated blood not being absorbed for months and then only incompletely. In some of the cases the absorption was rapid and complete in a few days, but a new hematoma soon developed. Atrophy of the limb above followed; in one case the middle third of the thigh measured 8 cm. less in circumference than its mate. The roentgenograms showed nothing pathognomonic. In 6 of the families the hereditary transmission of the hemophilia could be traced through generations, four in one family. This hemophilic arthritis represents an attenuated form of hemophilia, with a tendency to be outgrown in time. Inherited syphilis was known in 2 cases, and was suspected in a third. No attempt at operative treatment was made; extension was applied to combat contracture, and the joint was immobilized in plaster. The accumulation of blood can be tapped at need, followed by a compressing bandage and immobilization, and ovarian or thyroid treatment can be tried, or Weil's method of injecting blood serum every two months for years. If ankylosis requires operative measures, they should be postponed until the tendency to hemophilia has been outgrown to some extent. In 2 of the cases, several joints were affected, but in 3 both knees alone; in another case the right knee and right shoulder. The first disturbance was usually noted at the age of 5 or 6, and it kept to the same joint. In one case recurrence thirty times had been recorded.

Policlinico, Rome

May 1, 1922, **29.** Medical Section No. 5

*The Cocain Syndrome. F. Sabatucci.—p. 235.
*Diabetes Insipidus. P. Biffis.—p. 286.

Cocain Poisoning.—Sabatucci urges the necessity for recognizing the clinical picture induced when cocain is first taken. His study is based on an extensive experience, and he gives the details here of eighteen cases of acute and chronic types.

Diabetes Insipidus.—Biffis reports the exhaustive study of five cases of diabetes insipidus of years' standing. He was impressed with the contradictory findings in the different cases.

May 15, 1922, **29.** Surgical Section No. 5

*Ileus from Kinking of Small Intestine. O. Cignozzi.—p. 245.
*Chordoma of the Sacrum. R. Micotti.—p. 265.
*Postoperative Acetonuria. T. Laurenti.—p. 282.
Surgery of the Papilla of Vater. O. Tenani.—p. 291. Cont'd.

Kinking of Intestine from Membranous Pericolitis.—The intestine was bound down by the long pedicle of a fibrous body that had developed during the pericolitis. The inflammatory origin was beyond question. In this class of cases the membranous pericolitis is liable to return, while with the congenital pericolic membrane, once removed, there is no recurrence. It is important therefore to differentiate these two groups, and with the inflammatory type take extreme precautions against irritating the tissues in any way, operating rapidly and leaving no raw surfaces and, perhaps, concluding by pouring in a little liquid petrolatum to ward off adhesions between the loops.

Chordoma of the Sacrum.—Micotti's patient was a man of 53 and he died a few days after removal of the malignant chordoma. The first symptoms had been noted about three months before, shortly after a trauma of the region, and the tumor rapidly increased in size. It is the fourth case on record, he says, in men, and only one case is known in a woman. Exploratory puncture in his case differentiated the lesion before the operation. Even when safely removed, the growth recurred *in situ* after an interval of four months and thirteen months in two of the cases, but metastasis was never known.

Postoperative Acetonuria.—Laurenti concludes from study of eighty-five men and seventy-five women after various operations that acetonuria is almost constantly observed after chloroform and ether anesthesia and after spinal anesthesia, but it is rare with local anesthesia. The acetonuria never seemed to have any influence on the postoperative course, and no connection was apparent with the nature of the lesion, the fever, or the nature of the operation. It disappeared almost constantly as soon as solid food was given after the liquid food of the first three to eight days. He ascribes it to the strain of the operation.

Deutsche medizinische Wochenschrift, Berlin

May 5, 1922, **48.** No. 18

Deficient Ejaculation: Functional Aspermatism. Fürbringer.—p. 577.
Cathartics and Their Use in Medical Practice. F. Müller.—p. 580.
Course of Infectious Diseases under Continued Deficient Nutrition. A. Sternberg.—p. 581.
Clinical Experiences with Neo-Silver-Arsphenamin. A. Stühmer.—p. 584.
Prevention of Toxic Manifestations (Fever, Cutaneous Inflammation) After Injections of Neo-Arsphenamin by Concomitant Administration of Calcium Bromid and Calcium Chlorid. D. Kennedy.—p. 586.
Actinomycosis of Semilunar Ganglion and Actinomycotic Suppurative Leptomeningitis. H. Stahr.—p. 586.
Kaup Modification of the Wassermann Reaction. H. Langer.—p. 588.
Gastric Secretion and Diseases of Liver. C. Mowes.—p. 588.
Genesis of Peptic Ulcers in Digestive Tract. Müller.—p. 589.
Determinations of Hemoglobin Content (Sahli and Autenrieth-Königsberger). E. Komiya and T. Katakura.—p. 591.
Yellow Dermography in Icterus. J. Schürer.—p. 593.
Stethoscope for Blood Pressure (Korotkow). J. Bamberger.—p. 594.
Roentgen-Ray Injuries. S. Möller.—p. 595.
Affections of the Pleura. G. Ledderhose.—p. 596.
Gynecologic Examinations. H. Freund.—p. 598.

May 12, 1922, **48.** No. 19

*Porphyrinuria. I. Snapper.—p. 619.
*Blood Pressure in Cardiac Patients with Dyspnea. K. Frehse.—p. 621.

Good Effects of Gymnastics on Children Exempted on Account of Weak Constitution or Asthenia. W. Kohlrausch.—p. 623.
Silver Arsphenamin, Old and New. Hübner and Marr.—p. 624.
Clinical Importance of Weichbrodt's "Simple Spinal Fluid Reaction." W. Götz.—p. 626.
Acute Pyloric Stenosis after Benzol Poisoning. W. Hetzer.—p. 627.
Rigorous Use of Cathartics in Dysentery. T. Hausmann.—p. 628.
Causal Morphology and Practical Medicine. G. Ettisch.—p. 631.
Affections of the Mammary Gland. G. Ledderhose.—p. 633.
General Therapeutic Technic in Gynecologic Practice. H. Freund.—p. 635.

Porphyrinuria, With and Without Colic.—In explanation of the remarkable clinical picture of acute porphyrinuria; that is, severe abdominal colic with porphyrinuria, in which, after several attacks, death ensues amid neuritic manifestations, Snapper sets up the hypothesis that in such cases a chronic poisoning damages first the retroperitoneal nerve ganglions and thus brings on colic and porphyrinuria. Later, this intoxication affects the whole nervous system, and the patient succumbs under symptoms of polyneuritis. Two cases are described, with the necropsy findings, in which there were no colic pains at any time. The patients were two men of 21 and 29.

Blood Pressure in Heart Disease with Dyspnea.—Frehse examined for a period of a year and a half all the cardiac patients entering his clinic, and studied also the case histories of cardiac patients for five years back, with a view to ascertaining the relation to blood pressure of dyspnea in cardiac patients. The histories of 700 cardiac patients constitute the basis for his statements. There were patients with valvular lesions and muscular insufficiency; all grades of stasis, from the mildest form up to stasis with grave dyspnea, cyanosis, edema and exudate. In the majority of these patients, arterial pressure at the height of stasis was normal. In 142 patients the maximal pressure was increased to 150 mm. of mercury. But the significant thing was that out of this large number of cardiac patients not a single case was found in which the high blood pressure seemed to be causally connected with the dyspnea.

Deutsche Zeitschrift für Chirurgie, Leipzig

April, 1922, **170**, No. 5-6

Operative Treatment of Appendicitis; 1,000 Cases. Suermondt.—p. 289.
*Rectitis and Its Consequences. W. Smital.—p. 318.
*Birth Paralysis plus Congenital Deformities. A. Schubert.—p. 343.
Loose Bodies in Joints. M. Kappis.—p. 367.
*Transfusion of Blood and Autotransfusion. Goder.—p. 384.
Arthritis Deformans of Elbow. W. Schulte.—p. 398.
*Nonspecific Disease of Testicles and Epididymis. F. Mandl.—p. 416.

Rectitis and Its Consequences.—Smital analyzes the experiences in Hochenegg's service with 80 cases of inflammatory disease of the rectum and its sequels. Only 21 were men and 15 were women of the 21 cases in which syphilis was responsible. In the 17 gonococcus cases, 12 were women, as also 8 of the 11 tuberculous cases. The consecutive strictures almost always required operative measures. External rectotomy gave excellent results in the 12 cases followed to date out of the total 22. One of the 5 with extirpation of the rectum is in good health ten years later. One woman was kept in good condition for two years by bougie dilatation, but then neglected it and required an operation. Conservative measures are applicable only in the initial stage, and on suspicion of syphilis. In 5 cases cancer developed later, but only in one instance in the rectum; in this case the carcinoma followed a year after colostomy for gonococcus stenosis of the rectum. An endless thread method is illustrated which has proved extremely satisfactory. A silk thread is passed from the natural to the artificial anus, and with this thread a long loop of tubing is pulled back and forth through the stricture. The man does this himself, and the colostomy was closed except for the thread. Defecation has thus been rendered possible by the natural route for sixteen years to date. To dilate the stricture more effectually, the tubing is reenforced with a smaller tube slipped inside. To keep the thread from cutting the loop of tubing, a short segment of narrow tubing is strung on the anal end of the silk thread.

Birth Paralysis.—Schubert presents evidence that malformations and deformities are so common with birth paralysis that the latter must be regarded as of intra-uterine origin, and not the result of birth trauma as a rule.

Transfusion of Blood and Own Blood Transfusion.—Goder has compiled 52 cases in which the extravasated blood was infused, with recovery of all but one of the otherwise practically moribund patients. He reports a favorable case from his own experience, and commends the procedure as harmless and life-saving. Tubal abortion is generally the indication, but it has been applied with rupture of the spleen, of the liver, and with gunshot wound of the spleen and of the lung. It is not necessary to defibrinate the blood; it is merely citrated and strained through several layers of mull lining the funnel.

Chronic Nonspecific Orchitis and Epididymitis.—Mandl assumed a tuberculous origin in three of his cases, and in two a needless semicastration was done. In three of the cases a Bassini operation for inguinal hernia was evidently a factor, as the disturbances soon followed. Epididymitis erotica may explain one case, and infection from prostatitis another, not of gonococcal origin.

Jahrbuch für Kinderheilkunde, Berlin

May, 1922, **98**, No. 3-4

Pigment in Skin of Children and Fetuses. M. Gonnella.—p. 123.
Digestion of Protein in Infant Feeding. O. Heller.—p. 129.
*The Differential Stethoscope. G. Kaulen.—p. 141.
*Dysentery in Young Children. G. Piltz.—p. 153.
*Influence of Atropin on Young Children. H. Slobozianu.—p. 176.
*Intestinal Neuroses in Infants. Stargardter.—p. 189.
*Heat Regulation in Infants with Deformities. A. Mader.—p. 195.
*Prodromal Eruption in Measles. F. J. Nöthen.—p. 211.

The Heart Sounds in Children.—Kaulen discusses the findings with the Buck differential stethoscope in 248 children from 1 month to 14 years old.

Dysentery in Children.—Piltz contends that dysentery is much more common in infants than generally suspected. It is highly contagious, and is often responsible for a part of the hot weather infant mortality. The dysentery may run a mild course but may aggravate nutritional disturbance from other causes. Complications in the form of pyelocystitis and pyelonephritis are comparatively frequent and of grave prognosis.

Influence of Atropin on Renal Elimination of Salt and Water in Children.—Twenty tests were made on eight children, including six infants; all but two of the children had healthy kidneys. Small doses of atropin seemed to stimulate the vagus and thus check the elimination of water and chlorids. Large doses paralyzed the vagus, and the output of water and chlorids increased.

Intestinal Neuroses in Infants.—Stargardter reports the cases of three breast fed and apparently normal infants who developed diarrhea, flatulence and colic for which no explanation could be found in the food or infection. Formed stools appeared after four or five daily intramuscular injections of epinephrin, and the cure was complete by the eighth or tenth day in 2 of the infants; the other child had several relapses. Probably intercurrent infections were responsible for this. The benefit from epinephrin seems to stamp the dyspepsia in such cases as a sympatheticotonic neurosis, if all other causes can be excluded and dietetic measures fail to relieve. These children showed no signs that suggested the exudative diathesis, and after recovery did not display any tendency to nervousness.

Heat Regulation in Infants.—Mader discusses in particular the malfunctioning of the heat regulating apparatus in deformed new-born infants.

A Pre-Eruption in Measles.—Nöthen cites 4 cases in which children convalescing from scarlet fever developed measles, and the actual measles eruption was preceded by a fleeting pre-eruption which came and went repeatedly within a few hours or days, shifting around, and showing all types of exanthemas, including rose spots, urticaria and purpura, as well as scarlatinal and measles eruption types. It has little diagnostic value unless possibly giving a clue to measles in an otherwise puzzling case.

Klinische Wochenschrift, Berlin

March 25, 1922, **1**, No. 13

The Constitution Problem in Psychiatry. E. Kretschmer.—p. 609.
Significance of Calories in the Theory and Practice of Medicine. A. Gottschalk.—p. 611.
Bilirubin Formation in Surviving Spleen. Ernst and Szappanyos.—p. 614.
Use of Purin Derivates in Spasms. S. Hirsch.—p. 615.
Favorable Experiences with Trichlorethylene in Trigeminal Neuralgia. K. Magunna.—p. 618.
After-Treatment in Laparotomy; with Special Reference to Rehn's Semi-Sitting Position. C. Rohde.—p. 619.
Spina Bifida Occulta and Sciatica. H. Weskott.—p. 625.
Relations Between Virulence and Rate of Increase of Infective Agents. Doerr and Berger.—p. 628.
Cultures in Vitro of Embryonic Tissues. N. Chlopin.—p. 628.
Disturbed Epinephrin Formation in Suprarenals. Peiser.—p. 628.
Foreign Body Simulating Diphtheric Stenosis of Larynx; Three Cases. T. Brandes.—p. 629.
Reichmann's Syndrome in Tabes Dorsalis. K. Regensburger.—p. 631.
Fundamentals of Present-Day Management of Wounds. W. von Gaza. —p. 632.
Healing of Injuries in Plants. E. G. Pringsheim.—p. 638.

Medizinische Klinik, Berlin

May 28, 1922, **18**, No. 22

*Myopia. A. Elschnig.—p. 683.
The Various Methods for Treating Wounds. Sonntag.—p. 685.
*The Tonus Under Protein Therapy. F. Glaser.—p. 688.
Sulfoxylatsalvarsan in Treatment of Syphilis. J. Fabry.—p. 690.
*High Blood Pressure. F. Kisch.—p. 691.
Calomel in Treatment of Inherited Syphilis. E. Müller.—p. 694.
*Arc Light Treatment of Lupus, etc. A. Fried.—p. 695.
Case of Transient Tactile Agnosia. Hillel.—p. 697.
*Ether in Treatment of Whooping Cough. Reim.—p. 698.
Dosage in Deep Roentgen Irradiation. F. Nagelschmidt.—p. 698.
Bioscopic Research on Antiseptics. F. Munter.—p. 698.
Disease of the Prostate. E. Portner.—p. 700.
Recent Literature on Stomach Disease. W. Wolff.—p. 702.

What the Practitioner Should Know About the Causes and Treatment of Myopia.—Elschnig remarks in conclusion that when a hereditary predisposition is suspected, the progress of the myopia can be checked by improving the general health, heeding physical anomalies, and treating inherited syphilis. Special care should be taken not to strain the eyes (near work only with good light, not too strong, etc.), and glasses should be worn for near work. Glasses for distance are of far less importance. For some years he has ordered instillation of pilocarpin two or three times a week, evenings, and is convinced that this seemed to have a favorable influence on the progress of the myopia. Atropin, he says, is useless or harmful.

Variations in Vessel Tonus Under Protein Therapy.—Glaser's research on the hemoclastic crisis was mentioned recently, June 3, 1922, p. 1768. He explains the drop in the number of leukocytes after parenteral injection of a protein as a vagotonic manifestation—the expression of a brief anaphylactoid condition. This brief vagotonic phenomenon may persist and become evident as the alimentary test leukopenia or hemoclastic crisis. The leukopenia in this latter phase, he argues, is merely the manifestation of altered distribution of the leukocytes, from the change in the tonus of the vegetative nervous system. He has witnessed the transformation of a sympatheticotonic alimentary leukocytosis into a vagotonic alimentary leukopenia under the influence of parenteral injection of a protein.

High Blood Pressure.—Kisch has found the average blood pressure in men of 40 or 45 of medium strength and build to be about 140, and 5 or 10 mm. mercury higher than this in larger and stronger men, fond of sports. In women, up to 130 was the average before the menopause. Transient hypertonia is common, and is liable to prove misleading. Even in the healthy, various factors may modify the pressure. With pain from gallstones, the pressure may keep high for weeks, and return to normal after removal of the cause of the pains. Certain drugs, such as digitalis and pituitary extract, send up the pressure. In 3 cases of exophthalmic goiter in young women, the pressure was 145 and 150 but dropped by 20 and 30 mm. as the hyperthyroidism improved. In certain other cases of exophthalmic goiter the blood pressure was below normal. This was the rule also in attacks of angina pectoris. A single pressure reading is thus liable to be misleading in all patients. With arteriosclerosis affecting the aorta in particular, the pressure was very seldom over 160 or 170 and the diastolic pressure was normal or only slightly above. With arteriosclerosis of the peripheral vessels, both the systolic and the diastolic pressure were higher; up to 180 and 200 was common. But the pressure and the pulse alone with arteriosclerosis afford little insight into the severity of the process and the functional capacity of the heart. There is also a sympatheticotonic form of asthma with remarkably high pressure for which no explanation can be found. The blood pressure was found very high also in a few cases of diabetes, a "nervous chromaffine diabetes with high blood pressure."

Carbon Arc Light Treatment of Surgical Tuberculosis.—Fried reports from the Lupus Institute at Vienna that severe tuberculous lesions in bones and joints as well as lupus healed under the arc light treatment, alone or supplemented with roentgen-ray treatment. It was applied on the indications for and principles of heliotherapy. In one series of outpatients, severe processes in the knee healed without an immobilizing dressing and without appreciable impairment of function. Caries of sternum, ribs, foot and hand sometimes healed under the arc light alone. An 80 amperes lamp was used, or three lamps of 20 amperes each. The latter allowed a larger number to be treated at a time. It was impossible to foretell the cases in which treatment would be successful. The organism may lack the reacting power necessary, but these refractory cases should not deter from trying the arc light treatment for a few weeks or months in suitable cases. No injurious by-effects were ever observed, except occasional transient sunburn effects. The aim was to tan the whole body, the arc light 60 or 80 cm. from the body, the focus approached to 30 or 35 cm., the sittings never over an hour, and repeated three times a week. The number of cases is not mentioned, but this treatment has been regularly applied since 1915.

Ether in Whooping Cough.—Reim injected daily 1 c.c. of ether, with 0.05 gm. camphor, subcutaneously in treatment of infants, and twice this amount in older children, in a recent epidemic of thirty-seven cases of whooping cough. The course was mitigated materially in three infants less than three months old in the third or fourth week of the disease. All bore the injections without apparent harm. After five or six injections, the paroxysms dropped from 18 or 24 a day to 6 or 8. His experience has convinced him of the value of this ether-camphor treatment, especially in the early stages of whooping cough.

Münchener medizinische Wochenschrift, Munich

May 12, 1922, **69**, No. 19

The Idea of Function in the Term "Disposition" and the Morphologic Conception in the Term "Constitution." H. E. Hering.—p. 691.
The Nystagmus Problem. R. Cords.—p. 693.
General Considerations for Surgical Anesthesia. G. Schmidt.—p. 697.
*Local Anesthesia in Gynecologic Operations. J. Frigyesi.—p. 699.
Experiences with the Kielland Forceps. R. Zimmermann.—p. 700.
Clinical Aspects of Periarteritis Nodosa. Brinkmann.—p. 703.
Capillary Analysis of Gastric Secretion (Holmgren). C. H. Lasch.—p. 705.
Bladder Drainage with the Trocar. K. Nather.—p. 706.
Resuscitation of Infant Apparently Stillborn. P. Klein.—p. 707.
Successful Grafting of Hypoglossal on Facial Nerve. W. T. Schmidt. —p. 708.
Adjustment of the Light and Dark Field with Mirror Condenser in Leitz Apparatus. H. Reck.—p. 709.
"Colloidal Mercury" and Linser's "Mixing Syringe." Forster.—p. 709.
The Essential Basis of Constitutional Anomalies. P. Mathes.—p. 709.
Treatment of Gonorrhea in the Female with Celluloid Capsule (Pust). S. Löber.—p. 710.
Errors in Dosimetry in Deep Roentgen Therapy. K. Frik.—p. 711.
Treatment of Pertussis. Klotz.—p. 711.

Local Anesthesia in Gynecologic Practice.—Reporting on results in the Municipal Women's Hospital in Pest, Frigyesi emphasizes that nearly all gynecologic operations may be performed under local anesthesia. The mortality is low and the patients are more comfortable after the operation. Of 277 laparotomies, 101 were performed solely under local anesthesia and 96 under local anesthesia with the introduction of a superficial narcosis.

Zeitschrift für Tuberkulose, Berlin

May, 1922, **36**, No. 3

*Legislation for Prophylaxis of Tuberculosis. F. Kreuser.—p. 165.
The Nature of Allergy and Anergy. C. Kraemer.—p. 174.
Marriage of Consumptives. Schaefer.—p. 180.
*Operative Treatment of Pulmonary Tuberculosis. H. V. Wagner.—p. 181.
Analysis of Pulmonary Tuberculosis. E. Guth.—p. 193.

Legislation for Prophylaxis of Tuberculosis.—Kreuser outlines the regulations which he would like to have adopted to provide for notification, welfare work, ways and means, etc., for a more systematic campaign against tuberculosis.

Operative Treatment of Pulmonary Tuberculosis.—Wagner comments on the prevailing trend towards operative procedures for pulmonary tuberculosis, and the more and more complete abandoning of surgery for bone and joint tuberculosis. In each of these lines brilliant success is being realized. If nothing eles is accomplished, the thoracoplasty usually dries up the source for contagion of others in incurable cases. With bone and joint tuberculosis, almost as fine results are being realized from heliotherapy in the vicinity of Berlin as Rollier has reported from the Leysin mountain climate. In the Berlin experiences, the action of the sunlight was enhanced by reflection from water, keeping the patients on rafts. The heliotherapy was also supplemented with means to induce passive hyperemia in the lesion, usually for four hours three times a day, with an hour's interval. Each time, from 0.2 to 1 gm. of sodium iodid is given internally before applying the band. Bier assumes that the iodin is deposited in the region under passive hyperemia. It promotes healing and counteracts the tendency to abscess formation under the heliotherapy. No plaster casts are used, but extension is applied, and passive and active exercises, but never to the extent of inducing pain. Bier's serial roentgenograms have demonstrated that even large sequesters are resorbed in time; the passive hyperemia seems to be responsible for this. The long wave portion of the spectrum seems to be the effectual portion for treatment of tuberculosis. In refractory cases, a change of radiant energy, a change of climate, the mountains or the sea, may prove successful. In conclusion, Wagner remarks that we smile at the nose rings of the African tribes, and the deformed feet of Chinese women, forgetting that we maltreat in the same way one of the most important organs of our body, the skin. It is our protection against pathogenic organisms, our most important excreting and temperature regulating organ. Our constant covering up of the skin hampers its functioning.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 5

*Renal Hematuria. A. Schüppel.—p. 201.
*Surgery of the Prostate. B. von Rihmer.—p. 214.
Contrast Medium for Pyelography. F. Gastreich.—p. 227.

Decapsulation of Kidney for Renal Hematuria.—The decapsulation failed to arrest the essential hematuria from the left kidney in the man of 55, and the kidney was removed. Incipient senile contracted kidney with sclerosis of the arterioles had been responsible for the hematuria. Decapsulation is futile in such cases. If internal treatment and roentgen-ray exposure of the spleen fail to relieve, nephrectomy should follow at once.

Operative Treatment of Hypertrophied Prostate.—Rihmer relates that the mortality was 31 per cent. in his 121 cases of hypertrophied prostate treated by catheterization alone. Aside from 31 with acute prostatic retention—who all recovered—23 died of the 95 being thus treated for chronic partial retention; 8 of the 16 with paradoxic ischuria, and 2 of the 5 with urosepsis. The death rate is thus high with catheter treatment alone. There were 5 deaths among the 18 uremia cases treated by cystostomy; calculi formed in some of the others, but a number are living in robust health six or seven years later. All were cured in the 4 cases of chronic partial retention and in the 8 with total retention, all with some signs of infection. In Alapy's series of 14 cases, cystostomy improved conditions so that operative measures became possible, with the recovery of 10. In 6 cases of severe prostatic uremia he operated in two stages, first reducing the uremia by cystostomy before attempting the prostatectomy. The effect of cystostomy is prompter and more complete than from a retention catheter. The bladder has to be emptied gradually with much distention. The scar of the cystostomy may have to be resected later, but, with all its drawbacks, the two-stage Freyer operation saves many men otherwise doomed. The indications can be much extended without increasing the mortality. In the sclerosis cases—the so-called atrophy of the prostate—intra-urethral measures may be advisable, but recurrence of symptoms is liable.

Zentralblatt für Chirurgie, Leipzig

March 25, 1922, **49**, No. 12

Technic of Appendectomy. B. Heile.—p. 394.
Total Amaurosis After Procain Injection or Air Embolism? O. H. Petersen.—p. 396.
A Diagnostic Symptom of Appendicitis. A. Gregory.—p. 397.
Operation for Hypospadias and Defect of Pendulous Portion of Urethra. A. Fischer.—p. 399.
"Is the Extirpation of Suprarenals in Epilepsy Justifiable?" Reply to Comment. O. Specht.—p. 402.

April 1, 1922, **49**, No. 13

Semmelweis, Not Lister, the Founder of Antisepsis. F. Bruck.—p. 426.
Excision of Gastric Ulcer Danger Zone. M. Kirschner.—p. 428.
"Sensory Fibers in the Anterior Roots." W. Lehmann.—p. 435.
Chronic Icterus Due to Compression by Tuberculous Gland. Hübsch.—p. 437.
Method of Counteracting Tension on Lines of Suturing. Meyer.—p. 439.
"Tetanus Reactivation After Seven Years." Comment. Herz.—p. 440.

Ugeskrift for Læger, Copenhagen

May 18, 1922, **84**, No. 20

*Estimation of Basal Metabolism. A. Krogh.—p. 525.

May 25, 1922, **84**, No. 21

*Active Immunization Against Diphtheria. L. Juul.—p. 553.
*Orthostatic Albuminuria During Pregnancy. E. Sylvest.—p. 563.
To Aid in Blood Count. E. Meulengracht.—p. 757.

June 1, 1922, **84**, No. 22

*Experiences with the Steinach Operation. K. Sand.—p. 597. Conc'n No. 23.

Estimation of Energy Metabolism from the Respiration.—Krogh describes a very simple apparatus which records the amount of oxygen consumed, and with as much precision as the gas analysis methods. The recording spirometer contains a tank of *natronkalk* to absorb the carbon dioxid as the subject inhales and expels his breath, with a known supply of oxygen from an oxygen tank. The diet is carefully regulated, and the urine findings recorded. He compares the data obtained by this means with Benedict's findings and Boothby and Sandeford's tables of basal metabolic rate determinations. Absolute repose and relaxed muscles are imperative, and this renders the research difficult with children; it may be necessary to give the child chloral or other sedative before the test can be properly applied.

Active Immunization Against Diphtheria.—Juul reviews what has been accomplished in Europe and America in this line, guided by the Schick reaction, and he urges the adoption in Denmark of Zingher's method.

Orthostatic Albuminuria Disappears During Pregnancy.—The orthostatic albuminuria had been under supervision since the age of 10. Albumin was never found in the morning urine and no tube casts were ever discovered, but albuminuria was found constantly in the afternoon urine except during the months of her three pregnancies at the age of 19, 23 and 27. No albumin was found at any time during gestation. The albuminuria returned each time after delivery. The absence of albuminuria on one occasion, eight days after the anticipated menstrual period had failed to appear, was accepted as a sign of pregnancy, soon confirmed by other signs.

Steinach's Rejuvenation Operation.—Sand's article is continued, but in this instalment he reports favorable experiences from operative treatment in fifteen cases of premature senility or impotency or depression. He thinks Steinach's principle is applied best by epididymectomy, resecting a segment, the farthest from the head of the epididymis, ligating and thermocauterizing the stumps, all under local anesthesia, but with extreme care not to injure the delicate nerves and vessels necessary for the testicle.